CONSERVATION MANAGEMENT PLAN FOR GANDHI BHAWAN, PANJAB UNIVERSITY

Funded by the 'Keeping it Modern' Grant Awarded by The Getty Foundation, Los Angeles, USA

July, 2017

Acknowledgements

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(Details included in the annexure B).

We acknowledge the contribution of international experts and organisations Professor Maristella Casciato, Mr. Paul Gaudette, Ms. Benedicte Gandini, Le Corbusier Foundation and the Canadian Centre for Architecture Archives. The final making of this plan was greatly impacted by the knowledge exchange at the Conservation Management Planning and Concrete Conservation Workshops organised under 'Keeping it Modern' by the Getty Foundation and C20 in end July 2016 (details included in annexure). The presentations and discussions during the workshop with experts from the CMAI, Getty Institute, C20 and other 'Keeping it Modern' Grantees helped in reviewing the approach to Gandhi Bhawan Conservation Planning.

Project Team

TECHNICAL SUPPORT STAFF OF THE PANJAB UNIVERSITY	ASSOCIATE CONSULTANTS	PRINCIPAL CONSULTANTS: DRONAH
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Executive Summary

"Gandhi Bhawan is a testimony to the culmination of Modernism as an aesthetic, historic and inter-cultural movement in India. It exemplifies the expression of Gandhian ideals through Pierre Jeanneret's interpretation of a modern institutional building in a newly democratic nation. Its conservation seeks not only to address its cultural, historic and aesthetic significance but also serve as resource for future conservation discourse for Modern Heritage in India, integrating new technologies and approaches with established protocols and standards."

This Conservation Management Plan for Gandhi Bhawan is prepared by the Panjab University with support of the Keeping it Modern Grant from the Getty Foundation received in 2015. It is an integrated and sustainable plan for the future management of the building, based on extensive background research, testing of materials, and technical analysis by a multidisciplinary team comprising of a range of experts and organisations such as DRONAH and IIT Madras.

The plan preparation also aimed to build lasting capacity by supporting training workshops for experts of modernism in India, as well as for local professionals who care for the Gandhi Bhawan and other modern buildings in the region. The plan preparation comprised of following phases:

1. Documentation, research and establishing significance of Gandhi Bhawan
2. Assessment of physical condition, use, services, management and testing of materials
3. Developing conservation actions and strategies
4. Detailing of individual proposals, secondary plans for the building and site and expanding on the implementation strategy
5. Training and capacity building of staff
6. Submission of plan after consultation with stakeholders and experts on Modern Architecture

The established significance of Gandhi Bhawan and detailed assessment has helped in charting out the policies for future conservation and use of the building. These are further detailed as clear treatment plans and action strategies along with a monitoring regime based on several tests and mock ups carried out during the planning process. The conservation management of Gandhi Bhawan includes the following:

1. **Landscape Plan**: Outlines recommendations regarding application energy efficient methods in lighting, landscaping, and other functions of the building as well as broad recommendations for internal and external environment of the site.

2. **Conservation Plan for Building and Interiors**: Incorporates conservation strategies for the building and further provide specifications for conservation work, detailed conservation and maintenance policies for structure, interiors, furniture and finishes. It also provides interior layouts and drawings and feeds the technical drawings for conservation works to determine the level of intervention required in each space.
3. **Use and Interpretation Plan (including Lighting and Services):** Specifically provides information regarding future use of spaces and reuse of areas as visitors' orientation for interpretation of the structure.
4. **Risk Management Plan**: Integrates concerns of disaster risk reduction through identification of natural and human induced hazards that may cause risks to the site and provides proposals for reducing and managing risks to both life and the identified values of the site.

All these plans supported by specific policies for each, address specific issues and enhance the overall cultural significance of the site. These also serve as important resources for future reference as well as for future fundraising for the building as well as other structures within the campus. The detailed technical drawings for the entire site are prepared as a part of the proposed project, using the documentation in the conservation plan as a base, and reviewing the onsite condition. These are presented as a reference set of documents to be used in all implementation works on site.

The implementation of this plan can be broadly considered in the 7 main sections covered in the plan and a 3 year implementation and phasing for the plan is outlined below.

	CMP WORKS	1 YR	2 YRS	3 YRS
1.	Landscaping – reviving the Pool			
2.	Conservation of Exterior panels			
3.	Conservation of Interiors and Furniture			
4	Services including Air conditioning if required after microclimate monitoring			
5	Interpretation and Use proposals			
6	Risk Management - CCTV and Fire Fighting			
7	Archival drawings- conservation and storage			

The detailed bill of quantities and estimates will be prepared as per the technical drawings and will be used for tendering works on site during the implementation stage. The outcomes of workshops held during conservation planning will be widely disseminated through electronic and other media for the benefit of professionals and specialists as well as stakeholders connected directly with site management.

The implementation of the CMP for Gandhi Bhawan is dependent on the availability of funds. Block estimates for various proposals under CMP as supported by detailed drawings are included in the annexures amount to a total of Rs. 18736124/- (Approx. 300000 USD). This is a substantial amount considering the annual funds available to the University for the maintenance and upkeep of all its buildings in the Campus. Hence, the University also needs to do further fund raising for the implementation of this plan and conservation of Gandhi Bhawan.

1. INTRODUCTION

1.1 'Keeping it Modern': The Getty Foundation and Panjab University

In 2014, The Getty Foundation, Los Angeles, created the **Keeping It Modern** Initiative to complement the Getty Conservation Institute's Conserving Modern Architecture Initiative (CMAI). The initiative seeks to identify and address the specific challenges faced by architecture ensembles belonging to the Modern Movement, which is one of the defining artistic and cultural movements internationally in the twentieth century. The grants offered will enable the creation of a sustainable and long-term plan for conservation management of sites based on exhaustive research and documentation as well as testing and analyses of materials used. It is under this scheme that the Panjab University applied for a grant for the conservation management planning for one of its most iconic Modernist buildings; the Gandhi Bhawan, in 2015. The Grant was awarded to Panjab University in July2015 to prepare this Conservation Management Plan for the Gandhi Bhawan.

Figure 1. Gandhi Bhawan as seen from the Library in Panjab University

Panjab University is one of the oldest formalised Universities in India supporting teaching and research in science and technology, humanities, social sciences, performing arts and sports. The University's inception dates back to 1882 AD at Lahore (Pakistan), and shifted later to Chandigarh post-Independence. With the political reorganisation of Punjab, the University became an inter-state body catering to the newly constituted states of Haryana, Punjab and Himachal Pradesh, along with the

union territory of Chandigarh. The Panjab University, with its 78 teaching and research departments besides four chairs for the research on the main campus at Chandigarh, has 188 affiliated/constituent colleges spread over Punjab and Chandigarh besides Regional Centres.

The Chandigarh campus of the Panjab University was planned as a self-sustaining institution in 1956. Presently, the campus extends over 550 acres in two sectors of Chandigarh, with its own housing, administration and public facilities. Jugal Kishore Chowdhury was commissioned to create the original master plan for the campus; however, the reigns of the project were soon handed over to Jeanneret. The University's in-house architect Bhanu Pratap Mathur carried out the detailing and implementation. It has several individual structures that are recognised landmark buildings of the Modernist Movement in India. The 'Keeping it Modern' Initiative announced by the Getty Foundation was seen as an opportunity by the Panjab University and the Development and Research Organisation for Nature, Arts and Heritage (DRONAH) to prepare a conservation management plan for the Gandhi Bhawan.

In particular, Gandhi Bhawan was proposed for the planning grant since it suits the evaluation criteria set by the Getty Foundation. It is a heritage building with architectural, scientific and cultural value as well as being symbolic of the structures that represent the extensive nation building exercise undertaken in the 1950s and 60sin India. The Gandhi Bhawan is a building associated with several key historic moments in Post–independence history of the country. Inaugurated in 1962, by Dr. Sarvepalli Radhakrishnan, the first President of independent India, the structure has been a home for prominent visitors over the years. The project proposal submitted to the Getty Foundation highlighted the potential of this initiative to raise the profile of thistwentieth century heritage as well as develop sound methodologies for its conservation.

DRONAH is a multi-disciplinary organisation that looks at developing cohesive strategies for conservation, management, adaptive re-use and interpretation for historic sites and has had previous experience in large collaborative projects that aim to develop benchmarks in the field.[1]Established in 2003, DRONAH has steered several cultural heritage works at the national and international levels for India. It has successfully completed projects funded by the Getty Foundation in the past, namely, the Conservation Master Plan for the City Palace Complex, Udaipur for the Maharana Mewar Charitable Foundation (MMCF), funded in 2007 and then again in 2009 through Architecture Planning Grants of the Foundation.

[1]For further details on DRONAH's organisational structure, activities and approaches, please visit www.dronah.org

This comprehensive conservation management plan for Gandhi Bhawan, is the first comprehensive plan for a Modern heritage structure in India to serve as a pilot for conservation of Modernist architecture in the country. The rich repository of heritage under the charge of the Panjab University represents some of the key achievements of Modernism in India. The plan emerges from the combined expertise of the large inter-disciplinary team from DRONAH, Indian Institute of Technology Madras (IIT Madras) and other associate experts along with the in-house expertise of Panjab University to ensure a scientific and sustained approach towards conservation of Modernist architecture in the country.

1.2 Vision, Goals and Objectives for the Plan

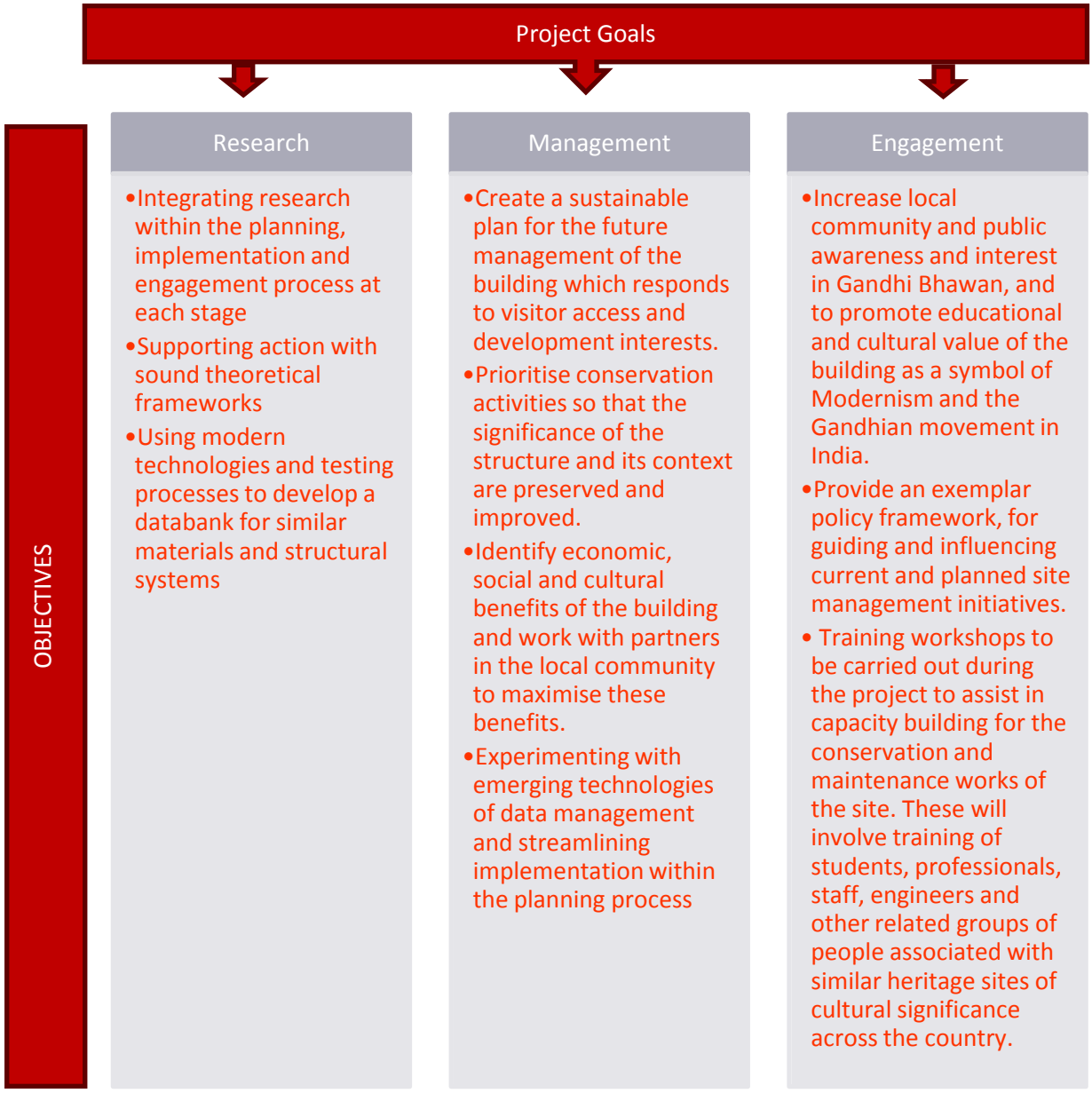
Conservation of Modern Heritage is a recent phenomenon in India and there are precious few examples of modern architecture conservation in the country. Furthermore, the Capitol Complex, Chandigarh has been recently inscribed as a UNESCO World Heritage Site as part of a trans-national dossier filed by Ministry of Culture, France indicating a growing awareness to Modern Heritage. Given recent developments, concrete conservation in Chandigarh would be required as a major discipline to undertake works in modern heritage structures in future; the conservation planning of Gandhi Bhawan at this stage can provide a role model for the city and nation. At the outset of the project, the Gandhi Bhawan appears to be in good physical condition generally and has undergone maintenance and repairs in the past, to address issues of weathering and age. However, considering the limited years of concrete life, there are sections of the building that have started showing material deterioration. Conservation Planning of Gandhi Bhawan at this particular stage to address its material deterioration, long-term maintenance and appropriate use of interior spaces will be a benchmark initiative in conservation in India. This Conservation Planning Document along with some on-site and laboratory testing to address material deterioration will subsequently guide the implementation works in the next phase.

The vision for Gandhi Bhawan is:

"Gandhi Bhawan is a testimony to the culmination of Modernism as an aesthetic, historic and inter-cultural movement in India. It exemplifies the expression of Gandhian ideals through Pierre Jeanneret's interpretation of a modern institutional building in a newly democratic nation. Its conservation seeks not only to address its cultural, historic and aesthetic significance but also serve as resource for future conservation discourse for Modern Heritage in India, integrating new technologies and approaches with established protocols and standards."

Figure 2. Gandhi Bhawan as seen from the Fine Arts Museum, Panjab University

The project goals follow three streams and respond to the 'Keeping it Modern' goals as well as the specific needs of the Indian context of heritage conservation and its understanding of Modernism and its physical manifestations.



The Project is conceptualised in the following stages:

1. Documentation, research and establishing significance of Gandhi Bhawan
2. Assessment of physical condition, use, services, management and testing of materials
3. Developing conservation actions and strategies
4. Detailing of individual proposals, secondary plans for the building and site and expanding on the implementation strategy
5. Training and capacity building of staff
6. Submission of plan after consultation with stakeholders and experts on Modern Architecture in India and technical experts on conservation of concrete

1.3 Preparing the Plan: Integrating Concerns and Approaches

The work on the conservation planning of the Gandhi Bhawan began in September 2016. Phase 1 of the work plan largely comprised of historical and archival research along with documentation of the building. The team worked on tracing the architectural evolution of the Gandhi Bhawan, drawing on history, architectural and landscape history, along with the history of repairs or alterations up to the present day. Most of the records are sourced from the Department of Architecture and Engineering at the Panjab University. Most of these original drawings were digitised, a selection has been conserved and all of them have now been stored properly for posterity. The team of consultants also digitized all existing reports, files, drawings and photographs available with the Panjab University and recommended that the University conserve the original drawings on tracing paper systematically.

The initial research has delved into the conceptual development, design and construction processes behind Gandhi Bhawan as part of the First Phase of Conservation Planning. Positioning of Gandhi Bhawan in the wider framework of Modern heritage in India and the world was discussed in detail at the first workshop organised December 2015, along with the significance of the unique form and materiality of the structure as a counterpoint to the other buildings within the Panjab University. Initial research into the usage and repairs of the building also reveals specific challenges presented by the building's design and structure. Additionally, the possibility of using new approaches towards developing material conservation strategies and integrating them into Building Information Management (BIM) Systems is proposed in future. Reviewing all historical drawings and documents available in various archives along with interviews of some of the original team members involved in the making of Gandhi Bhawan has helped in establishing important points related to design and execution of the structure.

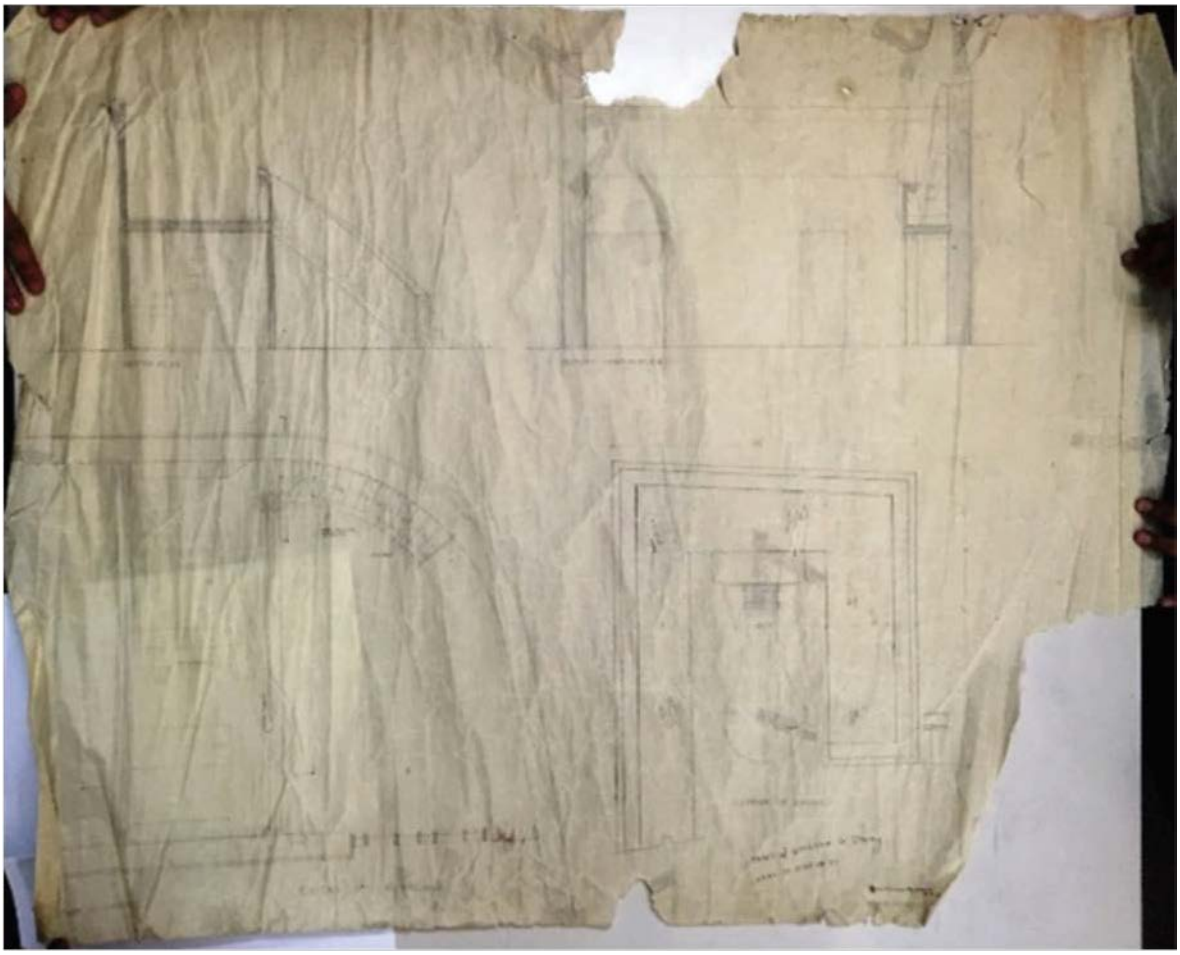


Figure 3. Original drawing of staircase railing and lighting detail currently located at the Architect's Office Panjab University

The expert discussions in the first workshop of Gandhi Bhawan focused on Modern Architecture in South Asia, its relationship with the International Modernist Movement and status of Modern Buildings in India. Proceedings of the workshop are enclosed as annexure to this report. Along with the workshop, an exhibition on Modern Architecture in India with a focus on Panjab University and Gandhi Bhawan was also organised at the Panjab University.The exhibition on Modern Architecture included few contemporary work of the 1950-60's in India to highlight various Modernist expressions throughout the country. The workshop and exhibition helped in assessing the cultural significance of the Gandhi Bhawan within the context of Panjab University and Pierre Jeanneret's work in Chandigarh and within the context of the Gandhian Movement in the mid-twentieth century and the framework of Modern Architecture in India

Site Analysis and Scientific, Historic and Architectural Survey such as Total Station Surveys, Laser Scanning, and Photographic Survey were completed in Phase 1. Laser scanning was employed to create as built drawings along with preparation of a detailed set of documentation drawings and developing virtual three-dimensional models. The team undertook exhaustive surveys, material

testing to confirm visual inspection of the building and interiors and cross-referenced it with original team members who are contemporaries of Jeanneret. Resources for implementation were raised based on this documentation and assessment of the site.The documentationsources all available archival documents, drawings, and visual material on the built form of Chandigarh and sourcing detailed background on Pierre Jeanneret. Accurate measured drawings are compiled through laser scanning and photographic surveys. The documentation and information can also be utilised in organising future outreach programmes for Gandhi Bhawan.

Figure 4. Point cloud prepared by PEGGS for Gandhi Bhawan

The second stage involved a detailed assessment of physical threats, structural and surface issues, assessing management issues, maintenance and upkeep lapses and current approaches towards the building use and management.

A team of onsite conservation architects and architects carried out preliminary condition assessment of structures for a period of two months. This process also included inspection of each precast concrete panel on the exterior of Gandhi Bhawan through sound testing and visual examination. IIT Madras focused on identification of exact scientific testing processes, and sampling of materials for strength, issues, composition, mechanical and physical behaviour. Assessment of services, landscape and issues of maintenance of exteriors and interiors, furniture and fittings was also reviewed in detail.

Based on visual inspection and initial scientific investigations, it was established that the structure of Gandhi Bhawan is in no immediate danger and is showing no visible signs of structural distress. The team members therefore agreed after careful deliberation that detailed structural analysis was not critical at this stage and can be taken up as part of long-term research into the Gandhi Bhawan.

The Gandhi Bhawan building has remained largely intact despite some alterations in the past to keep up with the changing needs of the building. However, considering the limited years of concrete life, there are sections of the building that have started showing material deterioration. The project team investigated and assessed its current conditions, which have been recorded on drawings created by laser scanning. Detailed approaches and methodology were tested in March- April 2016 for assessing conditions of various exterior and interior elements of Gandhi Bhawan. A number of techniques have been adopted including visual and mechanical surveys to identify the issues, which are being described through drawings and through descriptions. A sounding survey was undertaken for the cast-in-situ concrete for all the surfaces at Gandhi Bhawan. This technique involves tapping the surface of a concrete section with dead blow hammer or a mallet and evaluating the vibrations generated to detect planes of delamination. The differences in the sounds emitted during the percussive investigation enabled the surveyor to determine locations where the concrete is delaminating. The conditions were recorded on the schematic elevations produced during laser scanning. Several findings were investigated in detail, and then linked with the scientific testing carried out by IIT Madras. Archival drawings and documentation, including the original specifications approved for the building during its construction in 1960s supported the survey.

The survey has revealed some patterns that help in understanding the possible causes of decay as well as help in extrapolating how the building might behave in future. These patterns along with some current conservation techniques for modern materials were analysed in detail. An overview of these techniques and understanding of probable causes and current conditions will help in recommending treatments for Gandhi Bhawan. Through this exercise, an attempt is being made simultaneously to explore newer technologies for mapping conditions for better accuracy as well as link it to the assessment being undertaken by the other experts in the team to ensure that the approaches to Gandhi Bhawan remain streamlined. Further details of the condition assessment are available in Section 5 of this plan and the IIT Madras report included in the annexure.

Critical evaluation and condition assessment studies of the landscape environs of the Gandhi Bhawan have been conducted as part of the Gandhi Bhawan Conservation Planning project. The basic premise of approaching the condition assessment exercise for Gandhi Bhawan was to consider

the building as a part of a larger landscape where both the site and setting lends meaning to the built form and plays an important role in comprehending the building in its wider context.

The methodology includes appropriate scoping of the studies and understanding the landscape elements of the core site as well as its surroundings in the context of Gandhi Bhawan's unique symbolical and physical setting. Information for condition assessment were collected through site/building plans, archival photographs, documents like estimation report on pool construction, visual inspection and inputs on maintenance and repair records from engineering departments of Panjab University in charge of its maintenance. The natural and man-made components of the designed landscape that were identified for the studies were vegetation, water, landscape services, light sculpture and most importantly, the tank structure with its concrete floor, retaining wall & surrounding concrete footpath.

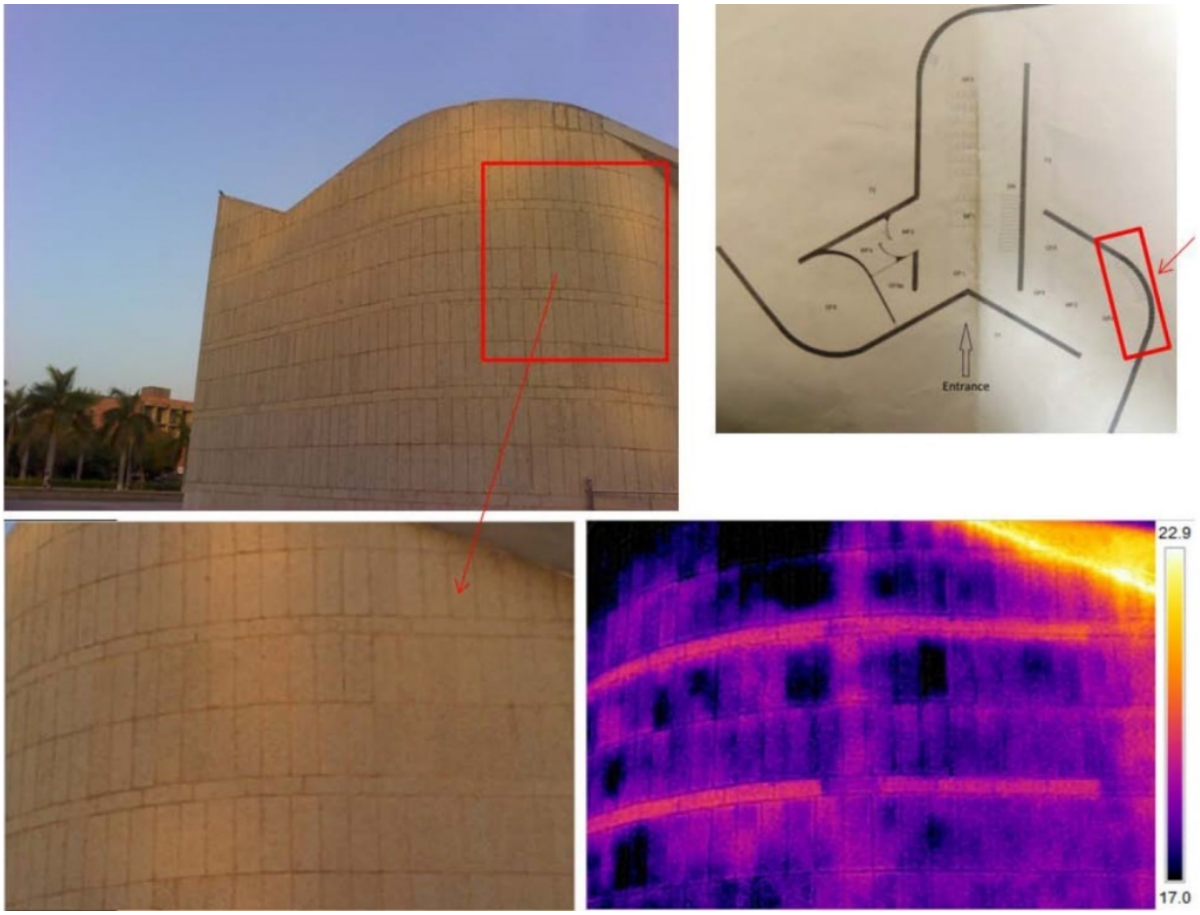


Figure 5 Findings for structural systems employed in Gandhi Bhawan (Source: IIT Madras)

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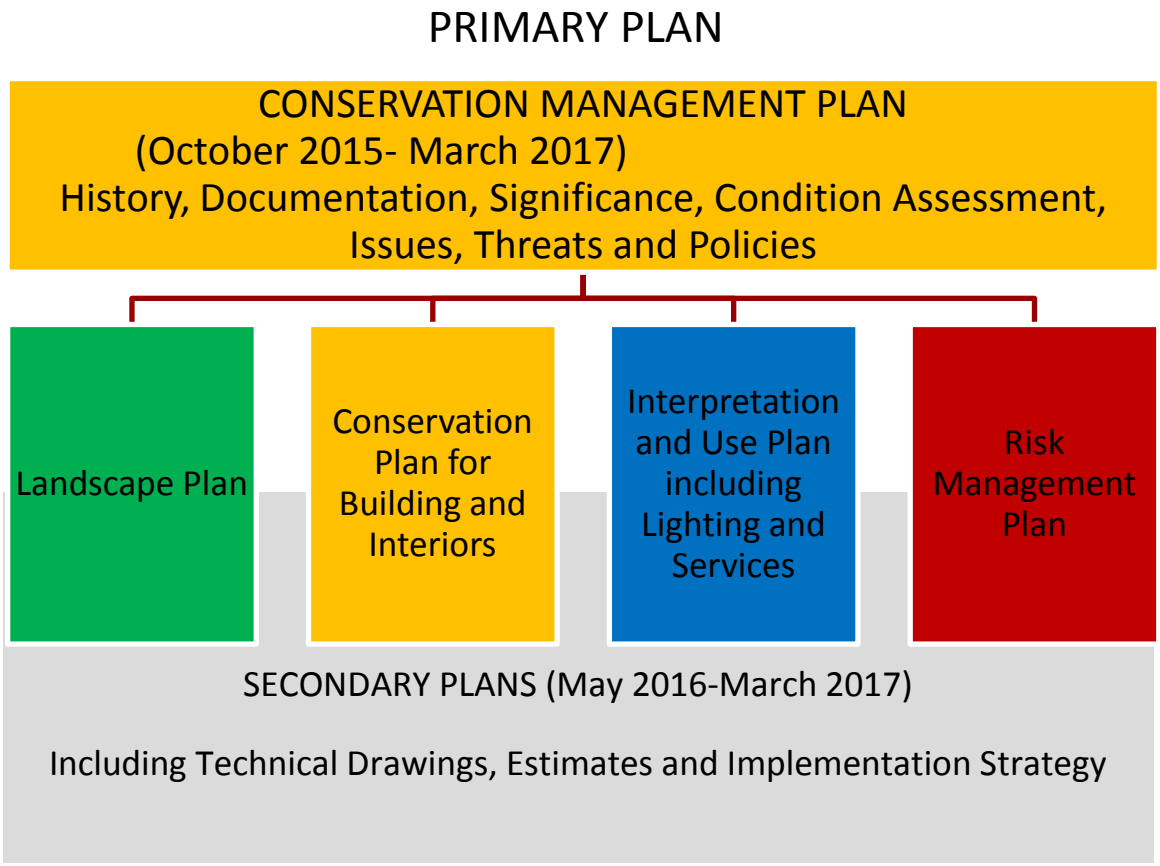


Figure 6. Conservation Management Planning Process

This project intends to go beyond preparation of a conservation management plan and serve as a pilot case and an educational resource for conservation of Modern Heritage in India. Very little scholarship and scientific data exists on the subject presently and it is expected that the documentation and research that emerges as a result of this project will be widely disseminated in the professional and academic arena.

2. CONTEXTUALISING GANDHI BHAWAN

> **Modernity is not a style. It is rather a cultural approach that has penetrated all regions of the world and is expressed in a variety of ways. It is this plurality of expression that represents our contemporary cultures and forms our recent heritage. In all periods, architecture has been built as a creative response to particular needs. In our time, such needs have become more distinctly different from their precedents than was the case in the past. Thus, architects have had the task of meeting the challenge and of providing innovative solutions that give results different from those we were used to seeing previously. Such efforts may not always have been successful, but there are certainly many masterpieces in our time, as there have been in the past. It is for us to learn to identify them and appreciate their quality.**(Jokilehto, 2003)

Modernism since its inception in early twentieth century, was expressed in various dimensions across the world leading to formulation of a range of styles and 'isms' well recorded in the history of modern architecture (Curtis 1986, Lang 2002, Lang, Desai and Desai 1997). A universal overarching approach in the use of materials and technology emerged; the new aesthetic evolved as a visible and identifiable element and new building typologies came to define the architecture of this period. The Modern Movement across the world can be traced across a vast spread of period between the beginnings of the industrial age in the west to the colonial and post-colonial contexts in Asia and other non-western regions. The regional variations and adaptations of this movement in each area and country contributed to a range of new building typologies, experimental constructions, architectural idioms and new vocabulary. In India, this movement is marked through a nation-building process best exemplified in the design of the post-independence state capital city of Chandigarh, and a range of innovative designs for educational, public, private and cultural institutions across the country. This movement in India also records the philosophical impact of political leaders and thinkers, such as Pandit Jawaharlal Nehru and Mahatma Gandhi, on the new architecture of Modern India.

While situating Gandhi Bhawan within this broad matrix of 'Modern Architecture Development' in India as well as that of Chandigarh and the Panjab University, it is more relevant to focus on three contextual perspectives:

1. Modernism trends in Asia as reflected in nation-building efforts in post-colonial regimes with the making of Chandigarh
2. Institution building and campus design with the campus planning of Panjab University
3. Post-independence recognition of Gandhian Ideals in India through the construction of Gandhi Bhawans

These three perspectives that impact the design and construction of Gandhi Bhawan in Panjab University are further explained in detail in the following sections.

2.1 Modernism in Asia and Nation-building in India: Making of Chandigarh

> **As new Asian nation-states came into being with their own ranks of native 'educated' architects, they started to compile their own national architectural history, which then led to the creation of 'national style' architecture. As in contemporary Central and Eastern Europe and Scandinavian countries, such romantic art/architectural movements arose in late-nineteenth- and early-twentieth century Asia, where the new national styles were created by referring to the Western historicist and even 'Orientalist' and 'hybrid' styles of the colonies. While such architectural movements prospered in Japan in the early twentieth century and again in the early 1940s, and in China and Thailand of the 1920s, other Asian countries experienced it mainly after their post-Second World War independence. After the war, it was modernist architecture, instead of the past historicist architecture, that served as the basis for such national expression. Nehru's invitation to Le Corbusier to build Chandigarh could be seen as part of such efforts towards the creation of a new architecture for the modern Indian nation-state.**(Muramatsu and Jenno, 2003)

Prior to Independence, a new generation of architects, influenced by western ideas, new materials and industrialisation, was emerging in India. At the time of independence in 1947, around 300 architects from across India graduated from the single institute for architectural education in the country; the Indian Institute of Architecture in Bombay that was modelled on the British system of architectural pedagogy. A few exceptional architects moved further to study or train under the Modern Architecture Masters in the United States of America and came back to practice in India. Though significantly influenced by American Modernism trends, as well as flourishing schools of Modernity such as the Bauhaus, they soon evolved their own regional idioms to create benchmark modern edifices in the country. The large-scale impact of Modernism was truly felt in India when the Swiss-born French Architect, Le Corbusier and his 3-member team, were invited by the first Prime Minister, Jawaharlal Nehru, to design and build the city of Chandigarh, while also training a young generation of architects inducted into the project. This post-independence decision to invite a

foreign architect for designing Punjab's new capital city in a specifically modern idiom (and, equip young Indian architects for the same) not only marks a turn in the Indian and South Asian architectural history but also records an important international phenomenon in world architecture.

> **It will not be an exaggeration to state that the development of modern architecture in India was accelerated by Le Corbusier. In the words of a Pune-based architect, Christopher Charles Benninger, "The arrival of Corbusier and Jeanneret in India was the turning-point in modern architecture, not only in India, but in the West as well. The very scale of the work and the freedom they were given, ushered forth a river of creative energy unknown in the twentieth century. As opposed to the glass boxes emerging in New York, the Indian work of Corbusier exhibited a new plasticity resulting in revolutionary sculptural forms. This was about the same time that the Guggenheim Museum and Ronchamp Chapel in France were created. These seeds of genius transformed the very way we think about built-form.** *(*Lang, Desai and Desai, 1997)

Lang, Desai and Desai, in their voluminous treatise Architecture and Independence, also express that the most profound foreign influence on India's search for a new architecture during the early years of Independence came from the Swiss-born French man Charles-Édouard Jeanneret, known internationally as Le Corbusier (1887-1965). Corbusier was arguably the architectural and urban design giant of the twentieth century, through his own work in Chandigarh and Ahmedabad during the early 1950s when he employed many young Indian architects, and that of his colleagues, cousin Pierre Jeanneret (1896-1967) and the two British architects, Maxwell Fry (1899-1987) and Jane Drew (1911- 1996). The Corbusian design patterns became an image and a symbol for the Modern India of Nehru's imagination. The group's progressive social ideals and architectural ideas fitted neatly with Nehru's ambitions for the country. For 20 years or more, Le Corbusier's work served as a model for an independent, democratic India.

The Chandigarh team was not only instrumental in changing the general attitude and approach of Indian architects but can be also credited for transforming the unorganised profession of architecture in India into a professional frame work. It is no coincidence that the architect turned activist-politician, Piloo Mody who was responsible for getting the Architects' Act passed by the Indian Parliament in 1972, was also trained in Le Corbusier's atelier in Chandigarh. By virtue of this Act, only qualified and registered architects with the Council of Architecture were licensed to practice in the country, thus establishing the foundation for professional architectural practice in India.

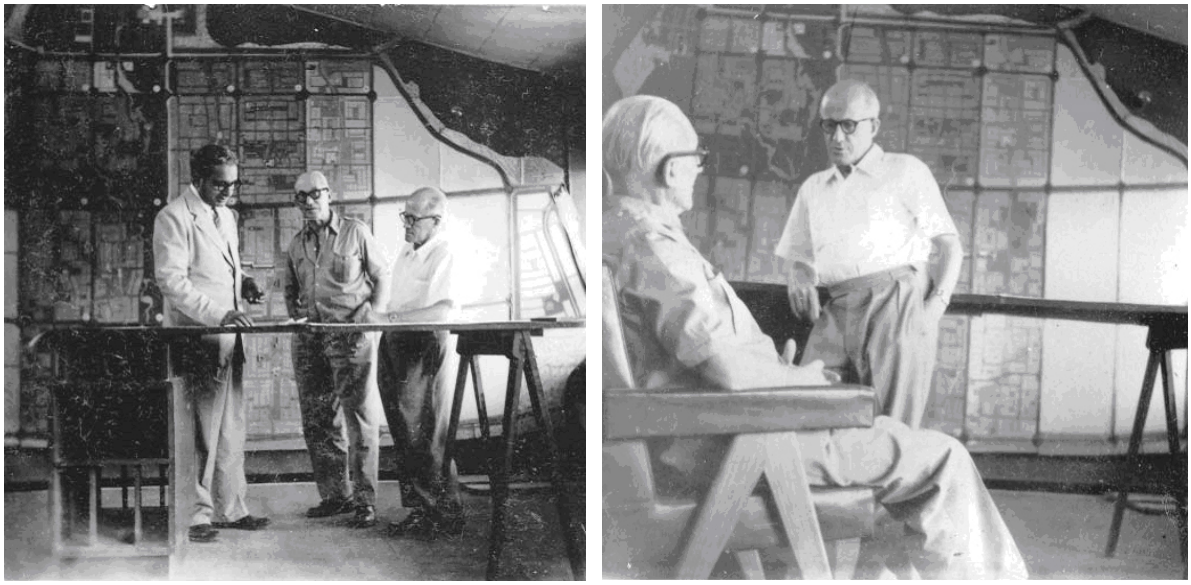


Figure 7. Le Corbusier and Pierre Jeanneret and P.L. Varma (The first Chief Engineer of the Chandigarh Project discussing the plans of Chandigarh (Source: http://chandigarhtourism.gov.in/lcc/img/4.jpg)

Arnold Andre Pierre Jeanneret-Gris was born on 22nd March, 1896 in Geneva and completed his architectural education from Ecole des Beaux-Arts, Geneva. In 1921, after a brief period of service to the Swiss Army (1916-18), he set up an architectural practice with his cousin, the celebrated Le Corbusier. They had a successful partnership until 1940, when Jeanneret moved to Grenoble and explored inexpensive construction technologies; an experience that was to prove useful during his engagement at Chandigarh. It was only in 1950, when he was appointed as a Senior Architect for the Chandigarh Project at Corbusier's insistence, that Jeanneret was re-united with his cousin professionally. Jeanneret spent the next fifteen years in planning and building Chandigarh with the large team assembled under Le Corbusier. He finally left for Geneva in 1965 where he lived until his demise in 1967.

Jeanneret was deeply impressed by the regional landscape of India and spent a considerable amount of time travelling and photographing scenes of everyday life in rural Punjab. These impressions have been crystallised in his design of the 'ordinary' buildings for Chandigarh as also some in Panjab University besides other places in Punjab such as Sunder nagar, Pandoh, etc. His early experiments with materials, pre-fabrication and low-cost technologies are also integrated into his approach towards the design and execution of the Gandhi Bhawan. His contribution to the making of Chandigarh includes the 14 types of government housing as well as a host of new building designs for educational, health, commercial, administrative and recreational purposes. Built within an extremely tight budget and an acute paucity of technical and human resources, but responding well to the local climatic and material context, these innovative designs stand as testimony to Jeanneret's

creative genius and, especially his love for detail. While Corbusier's interest in Chandigarh was in implementing a grandiosity of scale and proportion in the institutions of democracy such as the High Court, the Secretariat and the Legislative Assembly buildings, Jeanneret was more focused on providing a nobility of purpose even to the low-budget domestic and public architecture of Chandigarh. This refined and humane sensibility in his design approach is observed in the Gandhi Bhawan, which is modest in scale, yet sculptural in form.

While the impact of making the new capital of Chandigarh in democratic India was felt nationwide in the profession, it is also important to record the individual influences of Le Corbusier and Pierre Jeanneret on the team of some 14 architects and several more engineers working on this landmark project. Several accounts by contemporaries of both Corbusier and Jeanneret stress on the difference in their influence on budding young Indian architects who trained in their office. While Corbusier was revered as the designer and the master, it was Jeanneret who provided the humane dimension, interacted with the local administrators, architects, engineers and masons, dealing with the local context and other issues on a day-to-day basis. Not only was he responsible for the successful execution of Le Corbusier's vision of the Capitol Complex and its exposed concrete monuments, but is known in his own right as the creator of a large body of the 'ordinary' architecture required for a new city built *ex nihilo* and, also for instituting the famed "Chandigarh Style". As quoted by one of the Indian Modern architecture doyens, Jeet Malhotra, who worked closely with Pierre Jeanneret throughout his 15-year stay in India, "It is Pierre Jeanneret who helped me to inculcate a new understanding of texture, colour and form via use of exposed brickwork, stone masonry and concrete and an in-depth detailing." The contribution of Jeanneret to the making of Chandigarh and to the evolution of South Asian Modern Architecture stands as undisputed as do his efforts in realising on ground the vision of Le Corbusier's Capitol for Chandigarh.

Figure 8.Pierre Jeanneret with Jeet Malhotra and other young architects and engineers (Source: Le Corbusier Centre, Chandigarh)

Figure 9. Furniture setting in Pierre Jeanneret's residence inspired by rural Indian styles of seating (Source: http://www.jeanneret-chandigarh.com/wp-content/uploads/2014/03/jeanneret04.jpg)

2.2 Institution Building and Campus Design: Panjab University

An important component of the gargantuan task of nation building by the mid-twentieth century India, was that of creating new institutions that would impart modern education within a democratic framework. A new planning and architectural vocabulary was envisaged for a number of these new institutions leading to modern ideals of campus planning. The Panjab University in Chandigarh was the earliest of such newly developed campuses in independent India. The significance of the enterprise can also be seen in the fact that various architects and engineers, initially engaged with the building of the new capital, moved to contribute to the planning, architecture and design of the academic blocks and other buildings in this 'university town'. The Panjab University in Chandigarh also marks an important phase in human history, being testimony of one of the biggest migration in the world history, the Partition of the Indian sub-continent in 1947. The *raison d'etre* of establishing this University in Chandigarh has been succinctly summarised as follows:

> **On the eve of the Partition, the Senate of the Panjab University at Lahore decided to divide the material assets of the university between India and Pakistan. However, the Partition Committee, which was appointed by the Viceroy on August 12, 1947 for dividing the assets and liabilities of the two parts of the Punjab, did not endorse the decision of the Senate and left the matter entirely to the discretion of the national governments of India and Pakistan. The committee, however, held out an assurance that a separate university would be established in East Punjab as early as possible, and that the university at Lahore would function jointly for the whole of Punjab until June 1948. The recommendations of the committee were accepted by both the governments. Subsequently, the East Punjab Government promulgated an Ordinance on September 27, 1947, setting up the East Panjab University, presently known as Panjab University at Chandigarh with effect from October l, 1947. Thus, through the humour of history and irony of circumstances, the city of Chandigarh became a seat of learning.**
>
> **In the very first meeting of the Syndicate on October 27, 1947 a committee of six members was constituted in collaboration with the representatives of the State Government to suggest a suitable site, where the new university could be permanently established. After detailed deliberations, the committee decided that the university should have a campus of its own as this would not only facilitate the student population to interact easily amongst themselves, but also provide a healthier environment to work and thus increase both physical and mental efficiency. Besides, it would be a composite place which would facilitate the development of corporate academic life. The committee also concluded that the university campus should not be far from the capital for better interaction with the state administration. It was thus resolved that Chandigarh the most suitable site for the future university. The university hoped to build a unique campus of its own in harmony with the**

> **natural site of 145 hectares was thus acquired in sector, west of Chandigarh.** (Bahga and Bahga, 2000)

Dr. Sangeeta Bagga, who has been researching on the Panjab University Campus, notes that the educational campuses represent the backbone of a city's cultural resource and the citizens draw their inspiration from such institutions that serve as their alma mater and much more. Chandigarh was envisioned as a utopia, a harbinger of change signifying the promise of freedom, and within it was seeded a microcosm, the Panjab University that travelled from Lahore to Shimla, and its final destination, Chandigarh. A decision to consolidate its various, seemingly disconnected components was taken by the University Senate in 1954 and, land was purchased in Sector 14 towards the north western edge of the city bordering the Patiali Ki Rao rivulet. Together with an area to the west, it covered about 306 acres. Jugal Kishore Choudhury, consulting architect to the Punjab Government, who also designed some of the employees' housing and the College of Chemical Engineering and Technology that now houses the office of the Vice Chancellor, designed the first master plan. The influence of the 'Chandigarh style' developed for the city, as well as Chowdury's design for the main block of Punjab Engineering College in Chandigarh, is evident in these early constructions. In 1958, with the establishment of the Architect's office, it finally became the responsibility of Pierre Jeanneret, and Bhanu Pratap Mathur to develop its urban form and matrix.

The history of the University is well recorded in several publications while the architectural history of the campus, including the master-plan of the University and plans of all significant structures, was first produced in a Campus Planning book published by the Panjab University under Professor Suraj Bhan, who took over as Vice Chancellor in 1965. This publication also describes the responsibilities and functioning of the Architectural Wing of the University as well as the role of Pierre Jeanneret and other architects in the design of various buildings. For the Panjab University, Jeanneret worked in close collaboration with Bhanu Pratap Mathur, a young architect who was skilful in detailing out the conceptual ideas and communicating them to a large team of draughtsmen and contractors. This team was responsible for several significant and landmark designs within the campus, including the Arts and Science Teaching Blocks, the earliest Girls and Boys Hostels, the Administrative Building, the University Library and the Gandhi Bhawan. Contemporaries of Jeanneret recollect that he would visit the Panjab University Campus once or twice in a week from his city office in Chandigarh when he would share his design sketches for the campus and various buildings with the in-house university architect Mathur and his team (Refer annexure for details). It was then for Mathur to detail out each building and execute it on site with intermittent visits by Jeanneret who would keep a tab on the

progress and offer his advice when necessary. Another key person involved in the execution was the in-house University Engineer, Agya Ram who was critical to the team and responsible for the structural resolution of many of the complex formal concepts into executable built form.

As already described earlier, Jeanneret's signature style-- showcased in a range of building types undertaken during his 15 years in Chandigarh and other towns in Punjab-- portrays him as a skilful and sensitive architect, conversant with indigenous solutions. Despite the huge extent of the enterprise, or his status as the "Chief Architect" from 1955 onwards, there was no opportunity for him to take up more than low budget, small-scale "Type Designs" that fitted into the general cultural ethos of Chandigarh. However, his buildings of the Panjab University, free of the stringency of the Chandigarh budget and other compulsions of the established "Chandigarh Style", allowed him to explore bolder forms and experiment with newer materials, even while adhering to essential Modernist principles of functional appropriateness, climate responsiveness and use of unadorned materials in their natural state. Not only are these structures rated as the best of Pierre Jeanneret's Indian architecture, but are the main contributors of Panjab University's distinct visual and cultural identity. Professor Maristella Casciato, an acknowledged expert on Pierre Jeanneret's work in Chandigarh observes that

> **The Panjab University project embodies the quintessence of the political and cultural significance of the post-colonial age, in which culture and society embraced each other in order to allow individuals' to embrace the values of the nation-state program. Under this vision high education and the construction of new pedagogical infrastructures, such as universities were regarded as projects of national relevance.**
>
> **The architecture of the Panjab University is also to be seen as an expression of the concept of modern monumentality raised after the end of World Word II. Buildings are landmarks created as icons for human ideals, aims, and actions. They are intended to outlive the period, which originated them, and constitute a heritage for future generations. Built edifices as well as projects that remained unbuilt satisfy the eternal demand of the people for translation of their collective force into symbols. The red color of the facades dominates the campus landscape. Bricks are used in multiple variations of pose and weaving, and more relevantly, the red sandstones are applied in plates as coating material. This was an eloquent choice. With the introduction of a nobler material Pierre Jeanneret suggested to build a parallel with the tradition of Mughal red sandstone architecture, and therefore conferred upon the campus buildings the value of modern monuments.**
>
> (Casciato, 2016)

Figure 10. The contrast of materials used in the Fine Arts Museum and the Gandhi Bhawan recalls the positioning of Mughal monuments in a larger complex. The red sandstone in most University structures and the white of Gandhi Bhawan in contrast is reminiscent of the setting of Salim ChistiDargah in FatehpurSikri

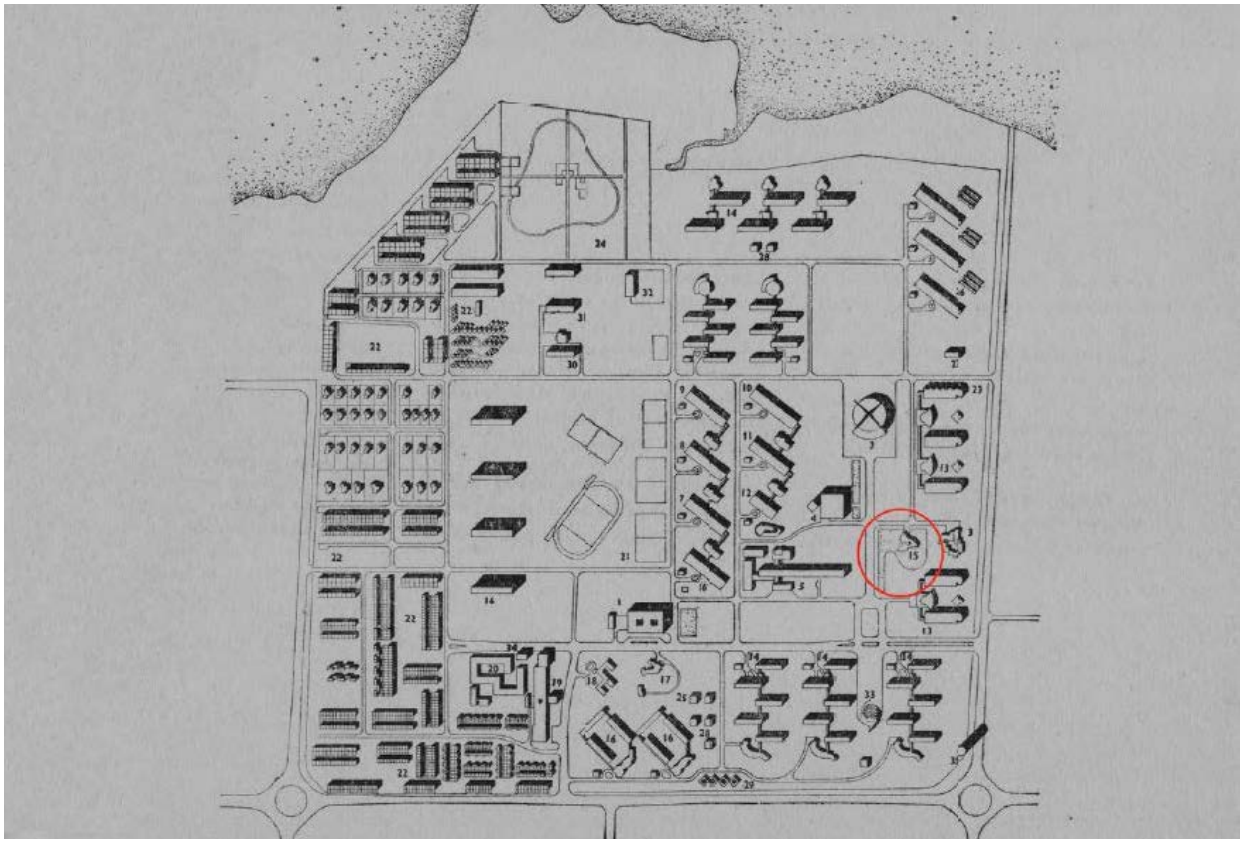


Figure11. Master-plan of Panjab University showing the location of Gandhi Bhawan (Source: Panjab University)

The trend of modern campus planning was observed in several other cities across India. The most notable one being the designs of the Indian Institute of Technology at Kanpur by Achyut Kanvinde (1959-66) and the School of Architecture and Planning (the first stage of the Centre for Environmental Planning and Technology) at Ahmedabad designed by Balakrishna Vithal das Doshi in 1967. Louis Kahn's campus for the Indian Institute of Management in Ahmedabad in 1972 became another modern architecture landmark at a later stage.

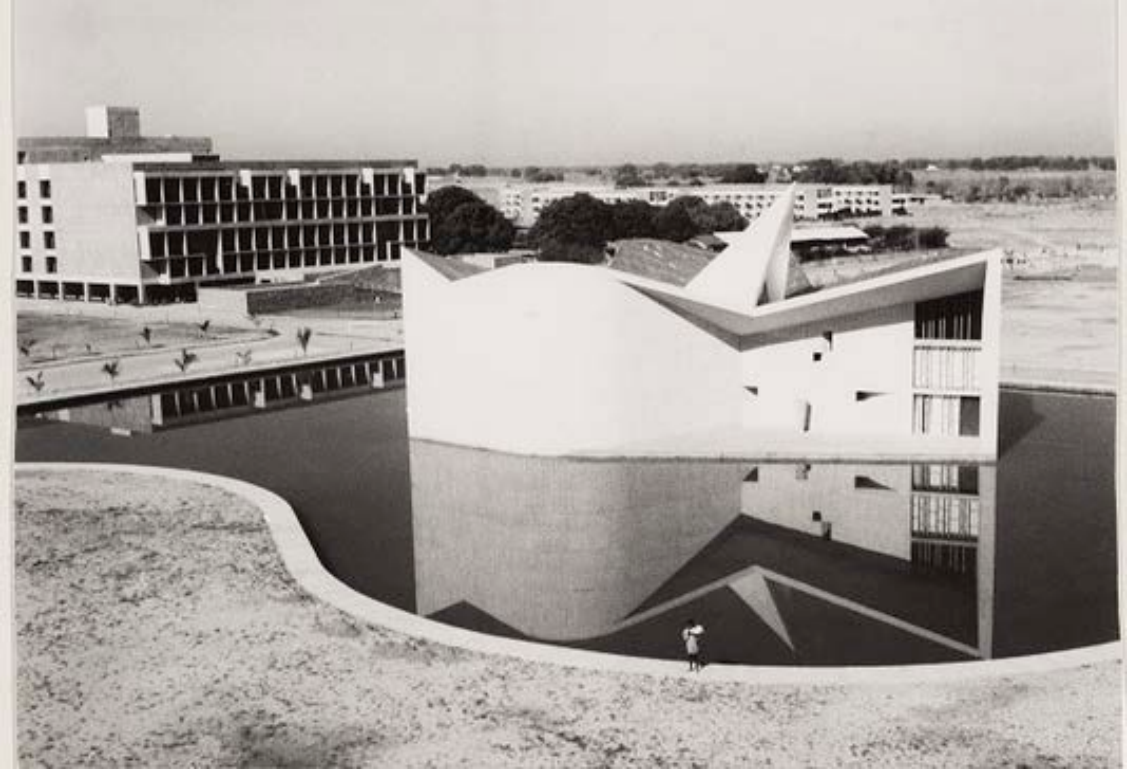


Figure 12. An archive image of Gandhi Bhawan within the University campus (Source: CCA Archives)

2.3 Post-Independence and Gandhian Philosophy: Gandhi Bhawans within India

While the post-independence architectural trends were primarily patronised through the Nehruvian philosophy with its focus on modernisation and scientific approach-thus resulting in modern, westernised structures with a vocabulary of new materials like glass, steel and concrete; there was also a conscious recall for commemorating the Gandhian philosophy and principles such as truth, peace and non-violence. This conscious building of monuments and institutions commemorating Gandhi and his ideals by modern architects of India present some very interesting architectural innovations across India, some of which are even categorised by critics as examples of Critical Regionalism.

Gandhi's social impact had spread to every corner of India in the early twentieth century. The idea of disseminating Gandhian philosophy had already been instituted through the formation of various Gandhi Ashrams. These were simple spaces where the Gandhian way of life was practiced and demonstrated and were a means for Gandhi to garner support and extend his influence. In 1915, the Satyagraha Ashram was established in Kochrab, Gujarat and in 1917; the Sabarmati Ashram was set up in Ahmedabad. The Sewagram Ashram at Shegaon near Wardha District in Maharashtra, set up in 1936, became a centre for various nation-building activities devised by him These spaces have garnered great social and historic significance, owing to the roles played by them during the freedom struggle.

2.3.1 The Gandhi Smarak Nidhi and setting up Gandhi Bhawans

Following the assassination of Gandhi on 30th January 1948, the Gandhi Smarak Nidhi, a National Trust, was set up by the Indian National Congress in response to the popular demand of many prominent citizen groups. A corpus fund was set up from donations, and political leaders under the Chairmanship of Dr. Rajendra Prasad, the first President of India, constituted an 11-member committee. Eminent leaders such as Jivatram Bhagwandas Kriplani and Joseph Chelladurai CorneliusKumarappa were its Secretaries, while the other members were Jawaharlal Nehru, SardarVallabhai Patel, Maulana Azad, Rajgopalachari, Raj KumariAmrit Kaur, Jagjeewan Ram, Dev Das Gandhiaand Jai Ram Das Doulat Ram.

Gandhi Smarak Nidhi sponsored a scheme to set up Gandhi Study Circles in different parts of the country, with the object of making available Gandhian Literature and holding study classes and discussions on the life and work of Mahatma Gandhi. In 1959-1960, the Nidhi made a proposal to the University Grants Commission that a series of Gandhi Bhawans should be established in all the

Indian Universities with the object of promoting the study of Gandhian ideals and his way of life. The Commission accepted the proposal and allowed Gandhi Smarak Nidhi to approach various universities, in consultation with the Commission, to establish such 'Bhawans' on the understanding that the University Grants Commission would make a matching grant, not exceeding Rs. 50,000/- in each case. After further consultation with the Nidhi, the Commission raised the amount of financial aid to Rs. One lakh (INR 100,000), and decided that, in the first phase, Gandhi Bhawans should be constructed in nine universities of India. The management of the Bhawan was left to the respective Universities. The proposal was taken up by Chintaman Dwarakanath Deshmukh, the then Chairman of the University Grants Commission. Jawahar Lal Nehru laid the foundation stone for the first Gandhi Bhawan at the Delhi University in 1959.

The table that follows records the construction of Gandhi Bhawnas in various locations across the country as part of the post-independence phenomenon of propagating the ideals of the Father of the Nation, Mahatma Gandhi. Most of the Gandhi Bhawans in various institutions across the country were opened between 1959 and 1965, with the one in Delhi University as the first of the series. In a number of cases they were housed in existing structures within the university while, in few cases, new building were made. However, it was only in Panjab University that the project was seen as an opportunity to create a Modernist landmark that would be a visible symbol of the Gandhian Philosophy and its role in modernising the political and social structure of Colonial India. The decision, in a way, reflects and strengthens the conscious rationale of using the Modernist vocabulary in Chandigarh to create a new city "unfettered by the traditions of the past" (Nehru 1952).

Table 1. List of Gandhi Bhawans constructed post-Independence

S.No.	Date/ Year Established	Name	Location	Description/ Current Status
1	1959-1960	Gandhi Bhawan Delhi University	Delhi	Still used for regular activities, workshops and seminars on Gandhian studies
2	1 December, 1962	Gandhi Bhawan, Panjab University	Chandigarh	Regularly in use by Gandhian scholars and also by the rest of the university
3	NA	Gandhi Bhawan, Beliaghata, Kolkata	Kolkata, West Bengal	Currently, in a state of dis-use and also at the centre of a legal tussle regarding ownership and sale
5	NA	Gandhi Bhawan, Cuttack	Cuttack, Odisha	Information not available
6	14 May, 1961	Gandhi Bhawan Pune	Kothrud, Maharashtra	Functioning well
7	NA	Gandhi Bhawan, Himachal Pradesh University	Shimla, Himachal Pradesh	Functioning well
8	NA	Gandhi Bhavan, Bhopal,	Bhopal, Madhya Pradesh	NA
9	8 December, 1965	Gandhi Bhawan,	Bangalore	Functioning well

Among other programmes, the Nidhi also decided to establish a museum at the national level to collect, preserve and display materials connected with Mahatama Gandhi and in 1949 the first Gandhi Memorial Museum or, the Gandhi Smarak Sangrahalaya, was inaugurated in New Delhi. Subsequently, in the years that followed, another four regional Gandhi Memorial Museums were established. (http://www.gandhimuseum.in/gmb-history.html)

2.3.2 The Gandhi Bhawan in Panjab University

As recorded in the archival documents available in the Panjab University,

> **With the object to furnish within the University Campus, a suitable place to keep Gandhian Literature, to hold study classes and discussions on the life, ideals and work of Gandhiji, to arrange for Lectures on the same and to encourage students to undertake such items of construction work as can be done inside or close to the Campus which will reflect the ideas and methods of work indicated by Gandhiji, it has been proposed by the University Grants Commission to provide a Building (to be called as Gandhi Bhawan) for this purpose. The scheme has the approval of the University Grants Commission and Gandhi Smarak Nidhi. (Ram, 1959)**

The construction cost of the building of Gandhi Bhawan at Panjab University, Chandigarh was shared equally by the Gandhi Smarak Nidhi, the University Grants Commission and the Punjab Government, with each organisation contributing a sum of rupees one lakh (Rs. 100,000). Mindful of the historic, social and political significance of the personality it was dedicated to, the University decided to build its Gandhi Bhawan in a central place within its Academic Zone. Its proposed location was planned close to various teaching departments and the main library of the University. The Gandhi Smarak Nidhi, in collaboration with the Vice Chancellor of the University, provided the original programmatic requirements to Pierre Jeanneret and his team.

Dr. Sarvepalli Radhakrishnan, the then President of India, performed the opening ceremony of Gandhi Bhawan on December 1, 1962. As narrated by Dr. Manish Sharma, Chairperson of the Department of Gandhian and Peace Studies at Panjab University and the Honorary Director of Gandhi Bhawan, some 5000persons, including state ministers, highly ranked government officials, members of the bar, eminent educationists, besides the staff and students of the University, were present during the inauguration. While addressing the gathering the President stated, “It is but right that the Panjab University should have thought of establishing a Gandhi Bhawan in this Centre of Education where Science is developing rapidly”. Gandhi had preached the importance of moral and spiritual values essential to satisfy the needs of man, advocated the practice of *ahimsa*(non-violence)and, stood for love and compassion between man and man. But Gandhi ji’s non-violence was the non-violence of the brave and called for the highest sacrifice in the defence of truth”.

In 1965, a regular Department of Gandhian Philosophy was started, with Professor I.D. Sharma, Head of the Department, Political Science, appointed as the First Honorary Director of the Department. A one-year Certificate Course in Gandhian Philosophy was instituted for imparting instruction in the social, political and economic philosophy of Mahatma Gandhi.

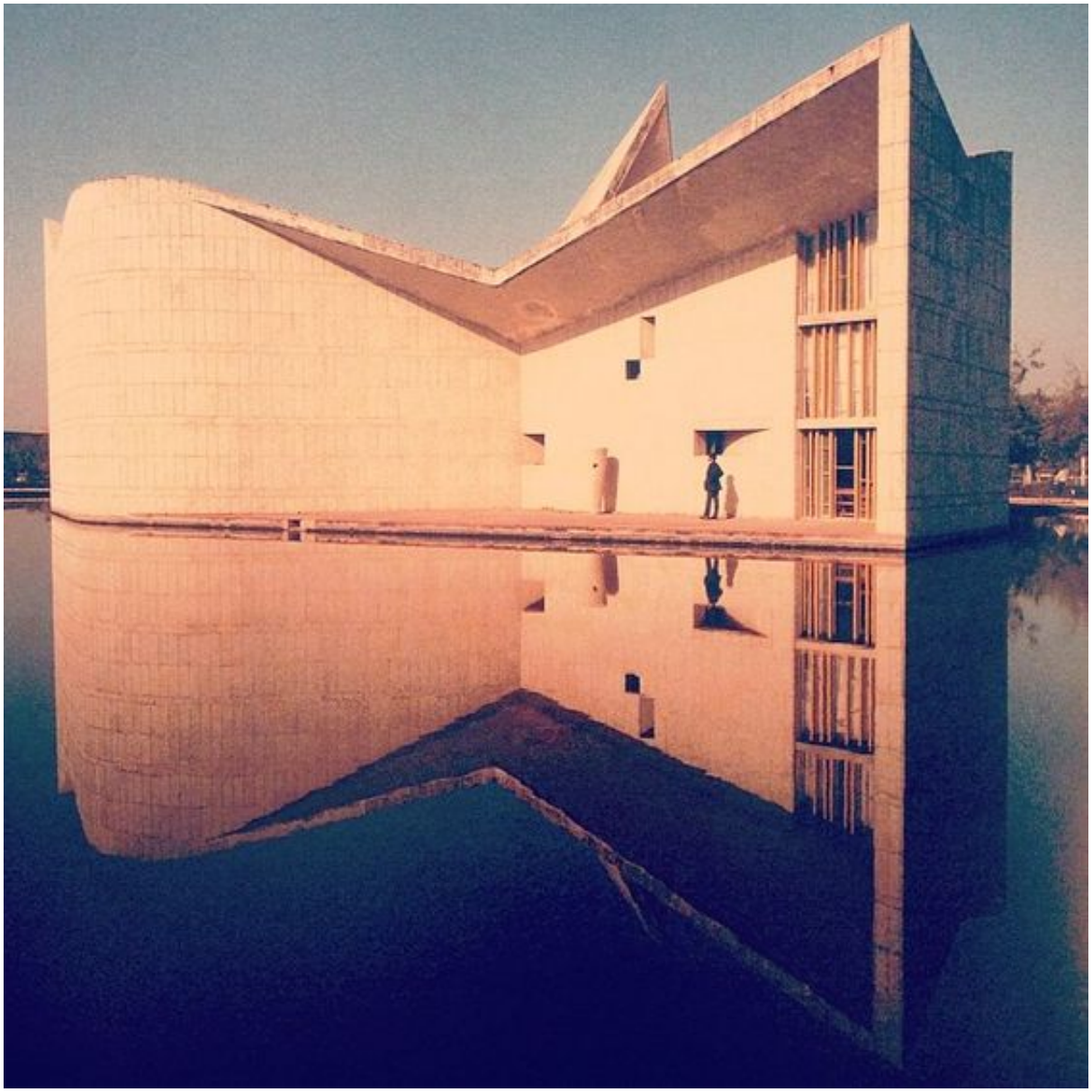


Figure 13Gandhi Bhawan reflecting in the pool setting

The principles of Gandhian thought have been central to the design development of the Gandhi Bhawan (Bahga and Bahga, 2000, Anand, 1963). The structure was intended as much as a memorial to Gandhi as it was to house the modest programmatic requirements of the Gandhi Smarak Nidhi.

Pierre Jeanneret's design of this memorial goes beyond this programmatic brief, becoming a sensitive, quintessential tribute to the Father of the Nation (Anand, 1962). Reflecting peace and tranquillity in the white colour facade and reflecting pool, rounded forms and a lotus flower-shaped roof set the Gandhi Bhawan apart from any other building on the campus clearly marking it as a symbol of Gandhian ideals. Many claim that Gandhi Bhawan is one of the most beautiful buildings designed by Jeanneret in India. It is interesting to note the varying architectural innovations in the key Gandhi-associated buildings of this period such as Habib Rahman's Gandhi Ghat at Barrackpore,

Kolkata(1949)[2], Vanu Bhuta's famous Gandhi Samadhi, Rajghat, New Delhi (1956)[3] and, Charles's Correa Gandhi Smarak Sangrahalaya in Ahmedabad (1958—63). Bhuta's is a simple design. Correa's is more complex, the design shows the link between a number of Modernist artistic ideas and Gandhian philosophy, especially in the frugality of the means used to achieve architectural ends. The unheroic nature of the grid of pyramidal roofs, the patterns of light and shade and the openness of plan remain an exemplary marriage of function and form in much more than the strict Modernist sense of activity and container—of designing a space or room simply to allow an activity to be carried out efficiently. It is as successful an homage to Gandhi as is Rahman's Barrackpore Memorial and Bhuta's Gandhi Samadhi. The goals of the three designers and the mechanisms they used differed, even though the Modern Masters influenced each. These three designs show the originality and variety of Indian interpretations of Modernist ideals.

As a Modernist structure, Gandhi Bhawan in Chandigarh represents many of the themes and expressions of its time, in both form and materiality. However, as a symbol of Gandhian philosophy, it represents a slightly divergent set of principles. It is this juxtaposition of architectural style and subject that make Gandhi Bhawan at the Panjab University unique and sets it apart from other contemporaneous Gandhi-associated buildings in the country.

[2]Built on the banks of River Hooghly, near Kolkata, where Gandhi's ashes were immersed.
[3]Built on the spot where Mahatma Gandhi was cremated.

Figure 14Archival image showing meeting of Pierre with Nehru in front of Gandhi Bhawan (Source: Tarun Mathur)

Figure 15 Archival Image showing Pt. Nehru in the Auditorium of Gandhi Bhawan (Source: Tarun Mathur)

2.4 Geographical Location and Physical Setting

The Gandhi Bhawan is a structure of modest scale, located in the southeast quadrant of the original campus of Panjab University. Along with the Fine Arts Centre (Teaching Block and Museum), Pierre Jeanneret's University Library Building as well as the Students' Centre, it forms the "Cultural Core" of the University. This "Cultural Core" was originally intended to be one of the major activity zones and central axes of the University's Master Plan, wherein would be located all the 'special' structures conceptualised by Jeanneret, with the open-air theatre and the Convocation Hall[4] marking its south-east and north-west terminals. This intended spatial organisation is not immediately clear when one visits the university today, since several changes to the original master plan, including the non-implementation Jeanneret's Convocation Hall and introduction of several new structures have impaired its legibility. Nevertheless, despite this, several design decisions, such as the considerable distance and the vast expanse of green lawns, a prominent row of tall palm trees along the approach road, the exclusive use of white external surfaces as also its distinctive form – continue to add to the visual integrity of the Gandhi Bhawan. It is set apart from all surrounding structures and upholds its intended position as the 'geographic and symbolic centre of Panjab University's cultural core' (Joshi 1999).

Figure 16 Archival image of Arial View of Gandhi Bhawan in context with surroundings (Source: Tarun Mathur)

[4]The structure was never built

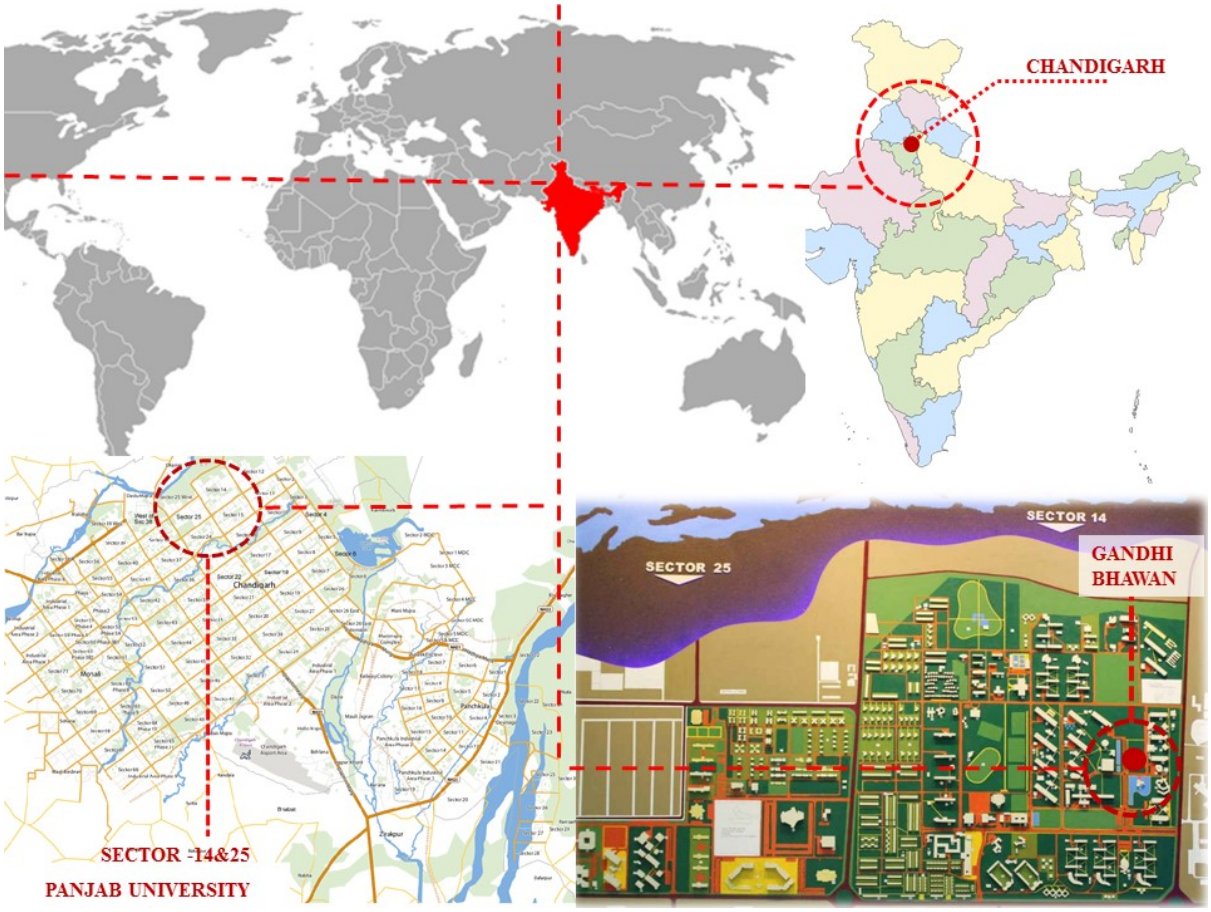


Figure 17Selection of Panjab University Campus and siting of Gandhi Bhawan

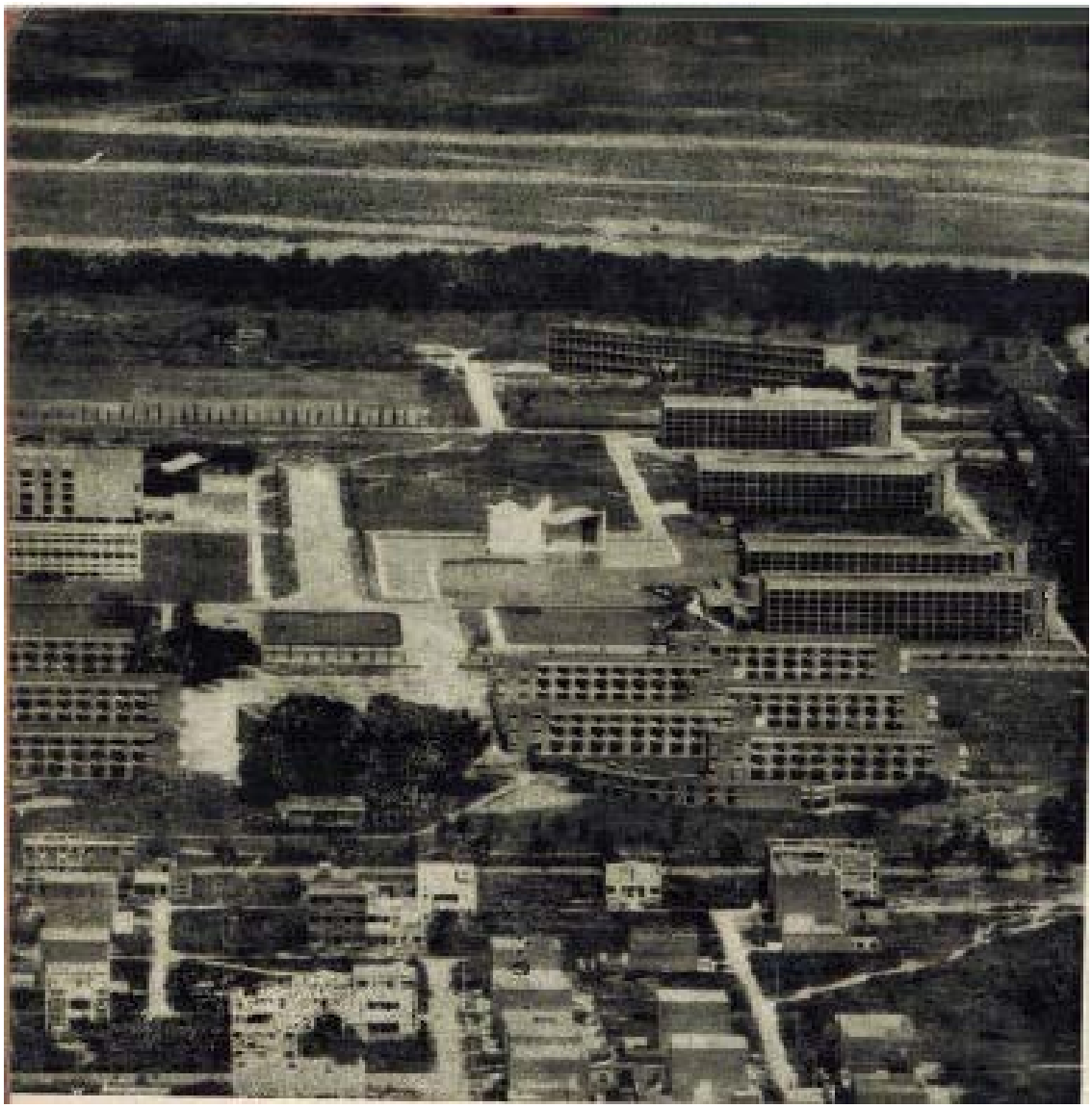


Figure 18. Aerial view of Gandhi Bhawan with reference to Boys Hostel (Source: Panjab University Brochure ed. 1)

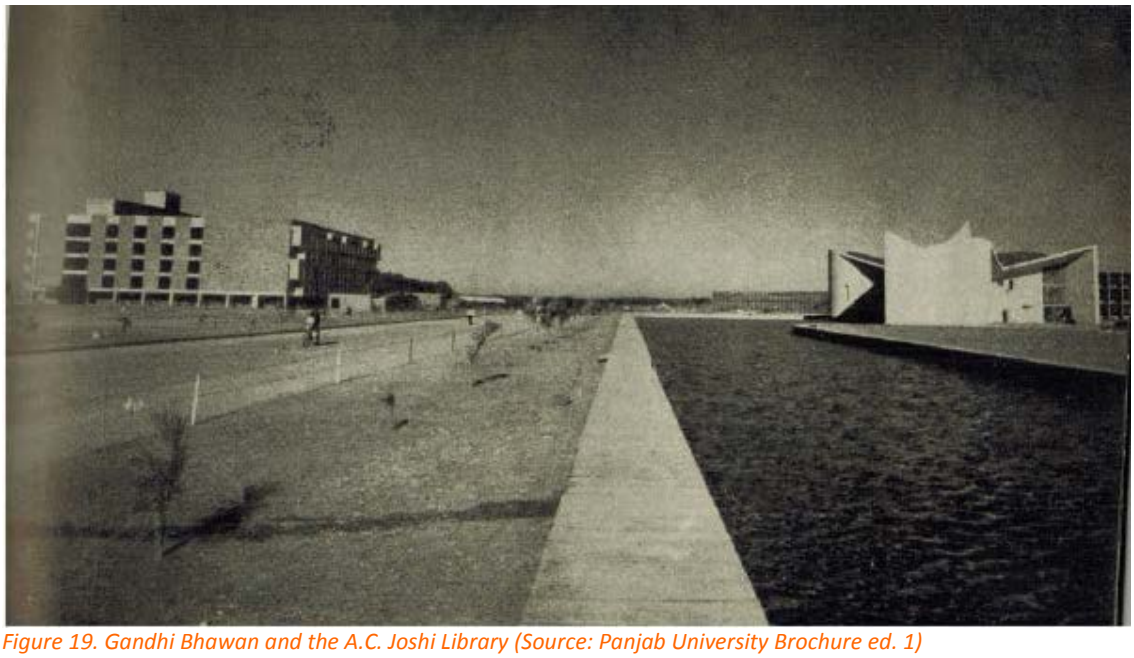


Figure 19. Gandhi Bhawan and the A.C. Joshi Library (Source: Panjab University Brochure ed. 1)

Figure 20. Aerial view of Gandhi Bhawan with its evolving setting (Source: Joshi 1999)

The Panjab University Campus itself is located in Sector 14, in the northeast quadrant of the original plan of Chandigarh[5].It now extends to Sector 25 of Chandigarh. Bound by Madhya Marg on the northeast edge, Vidya Marg on the southeast, Dakshin Marg on the southwest edges, and the Patiali-ki-Rao Reserve Forest on the northwest, the University campus is akin to an independent township. Besides buildings to house the teaching and other functions of a University, the campus also accommodates housing as well as other social and cultural amenities for its students' and staff. Though separate, the campus is closely linked with the rest of the city. A large part of the University contains a number of historically significant structures (apart from the Gandhi Bhawan), constitutes a well demarcated "heritage zone". As described by Kiran Joshi in Documenting Chandigarh, her seminal work on Chandigarh's architectural heritage,

> **This zone differs from all others (in Chandigarh) on account of its function, activity structure, the extremely generous scale of its open spaces, and an unusual architectural vocabulary not used elsewhere in the city. It also becomes significant for a collection of buildings representing a different aspect of Pierre Jeanneret's creative potential**. (Joshi, 1999)

[5]Chandigarh, a city and Union Territory that also serves as the capital of Punjab and Haryana, two adjoining states of northern India is located near the foothills of the Shivalikrange of the Himalayas. Its general topography is of flat alluvial plains, while the climate is the typical composite sub-tropical climate of the region.

3. CONCEPTUALISING GANDHI BHAWAN

3.1 Pierre Jeanneret's Vision for Gandhi Bhawan

> **Characteristically, one of the most sensitive poems in the architecture of contemporary India is Gandhi Bhavan**(sic)**, contrasting the verticality of Gandhi's aspirations with the substances on the earth plane, the sharp clarity of the probing lines and the gracious volumes of the walls with the shadow of the building in the artificial lake. Like the miniature Pearl Mosque, built by Shah Jahan after his labours on the Red Fort city in Delhi, the Gandhi Bhawan also came from the residual feelings of Pierre Jeanneret and his colleague, B.P. Mathur, almost towards the end of the Chandigarh development. The crisis in the mind of the 20th century man between contradictions of seemingly hard earth and the knowledge of social mobility and the optical illusions of a structure built on it, was resolved in this gem of architecture. The poor man's leader was given a small shrine, which may symbolise the future.** (Dalvi, 2016)

The Gandhi Bhawan is a three-winged structure jutting out in three directions that appear to be tethered together by its undulating roof. The three wings house three separate functions of Gandhi Bhawan. One of the wings houses a library of a substantial collection of books on Gandhi's life and work and attracts scholars from across the world. The second wing contains a small auditorium for lectures and seminars and, the third has a Committee and Seminar Room. "The choice of the building form was symbolic and emerged as an introverted, centrifugal one, wherein each of the three major functions, though contained in separately articulated wings, were linked together through interpenetrating volumes meeting at a central, sky-lit exhibition space"(Joshi, 1999). The Bhawan stands in the middle of a pool of water, to allow the viewer to appreciate the building from a distance. As already mentioned, an avenue of royal palms frames the approach to the building and acts as a visual frame of reference.

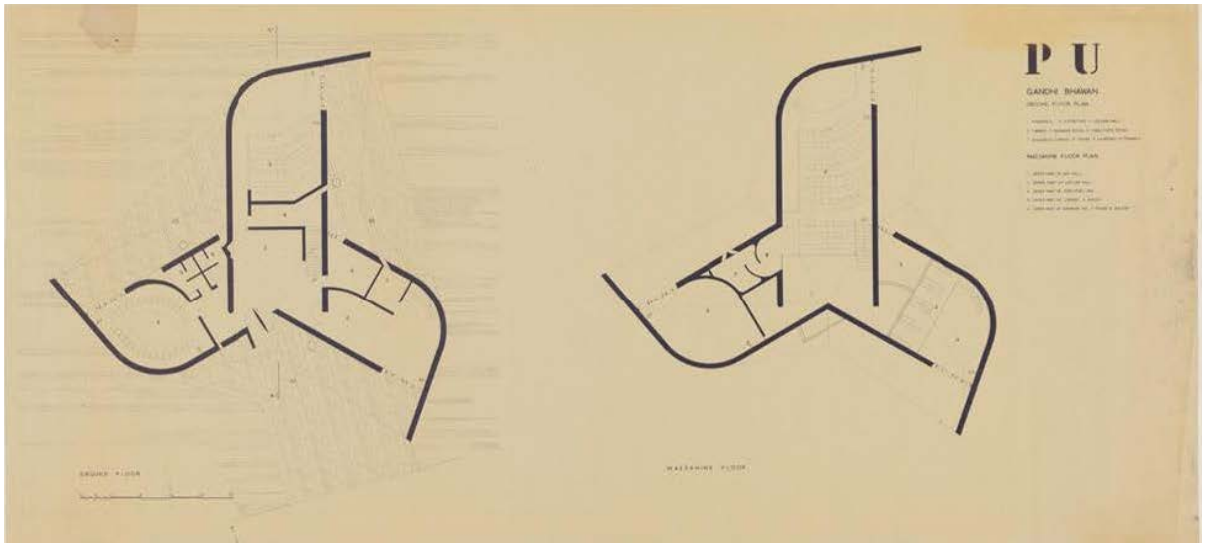


Figure 21. Layout plans of Gandhi Bhawan (Source: CCA Archives, Montreal)

Figure22. A model of Gandhi Bhawan, as initially conceived by Jeanneret is available with the Architect's Office at Panjab University. It illustrates some of the designer's initial thoughts on the layout, which were clearly modified later during the construction

The Gandhi Bhawan was one of the several structures within the Panjab University that Pierre Jeanneret approached as a platform to present the principles of Indian Modernism that he had finessed during the course of his career in Chandigarh[6]. Though distinguishable from his Chandigarh repertoire, the designs of all these buildings, apart from the Gandhi Bhawan, were impacted by factors of function and climate and, thus were largely cuboid in form. The design of the Gandhi Bhawan, on the other hand, came as an opportunity for Pierre Jeanneret to express his creativity, to play with form, material, shade and shadow in architecture that he could not fully explore within the stringency of the low-cost housing assigned to him in the Chandigarh Project. Jeanneret's Chandigarh work does present a certain amount of play with brick facades, ramps and curved walls of open-air classrooms in the various houses and the government schools that he designed. He also ventured into several other experiments with interiors of Nirlep Kaur's house, a privately-owned property in Sector 4 in Chandigarh. However, the Gandhi Bhawan was the first full-fledged opportunity for him, throughout the length of his career in France and India, to work on a form-dominant, symbolic building. Sources such as his apprentice architect, Jeet Malhotra, the site engineer for the University, P.C. Markanda, the draughtsman, Joga Singh have each remarked on how the Gandhi Bhawan was always intended to be more than a modest institutional building within the growing campus of Panjab University.[7]

This was also the point in Jeanneret's career when he had crystallised and began to express his personal views on form and aesthetics. As he wrote for *Marg* in 1961, around the same time as Gandhi Bhawan was nearing completion, "The aesthetic sense will not depend in any case on the richness of material or on what it is meant to be, but on the richness of spirit, imagination and invention." The Gandhi Bhawan represents his treatment of form as the true luxury of inventiveness, and his mastery of scale. For, despite being a structure of modest size, the Gandhi Bhawan achieves a sense of monumentality, purely due to its careful setting and juxtaposition among the other buildings within the campus.

[6]His other distinctive designs for Panjab University include the two original groups of hostels for boys and girls, the original teaching blocks for arts and science streams, the University Library and its Administrative Building. All are ingenious examples of adaptation of the Modernist principles to the local conditions.
[7]Refer Appendix for interviews

Figure 23. Gandhi Bhawan in juxtaposition with the Fine arts Building (Source: CCA Archives)

Though presenting a stark contrast with Jeanneret's experience of handling Le Corbusier's monumental forms of the Capitol, the contemplative scale of the Gandhi Bhawan nevertheless asserts itself. Furthermore, it also emphasizes his idea of representation as being central to aesthetics. His claim was that "…the 'educated man' would move on from proclamations of 'beauty' and 'ugliness' as would be observed even by a child or a primitive to questioning what was 'represented'…"(Jeanneret, 1961). This is a critical aspect to keep in mind, therefore, while observing the Gandhi Bhawan and while trying to understand the ideals that its creator meant it to represent.

3.2Landscape

> **To the northeast of the library stands a small building in a pool of water. Rounded forms and a lotus flower-shaped roof distinguish the Gandhi Bhawan from the surrounding building... the building has been placed in the pool of limpid water to create a quiet and meditative atmosphere.**(Bahga and Bahga, 2000)

In part, the visual setting of the Gandhi Bhawan has been preserved by one of its central features, the pool. The large, but shallow pool offers the Gandhi Bhawan a reflective counterpoint when it is full and is often compared to the Mughal device of using water as a reflective mechanism for monumental structures in places like Agra and Fatehpur Sikri. The metaphor of Gandhi Bhawan as a lotus is also supported by the design of the pool in which the building was sited. Considering this

from the perspective of Landscape Design during the Modern Movement in India, it is on record that the efficacy of such design devices was already proven in Le Corbusier's observations after visiting the Mughal monuments during his early days in India and their incorporation in the design of the High Court and the Legislative Assembly at Chandigarh's Capitol. What is interesting and unique in the case of Gandhi Bhawan is not only the complete reflection of Gandhi Bhawan with its pure white lotus form, but the deliberate juxtaposition with the reflection of the red sandstone building of the Fine Arts Building in the background. So, the contrasting materials and setting of Gandhi Bhawan on grounds gets further enhanced through these reflections in the pool.

Figure24 Modern Landscape aesthetics established in the design of the Assembly building and High Court (extensive studies carried out by Le Corbusier) are reiterated in Gandhi Bhawan setting.

Figure 25. Museum of Fine Arts in Red sandstone reflected in the Gandhi Bhawan Pool

Figure 26. Gandhi Bhawan reflected to perfection in the designed pool (Source: CCA Archives)

Figure 27. Intended reflection of Gandhi Bhawan from both South West and South East side (Source: CCA Archives)

The design of the pool as described in the detailed estimates documents found in the Architect's Office of the Panjab University, reveal that the pool was originally intended to be much deeper, six feet (1.8 metres)instead of current two feet (0.6 metres) (Ram, 1958). Two separate estimates accompanied by drawings for the pool also show that there was some debate as to the actual profile of the pool as well. Verbal accounts by Jeanneret's team members suggest that the burgeoning cost of the pool was also an issue during its construction, but possibly the architects were able to convince the clients that the pool was central to the concept of the Gandhi Bhawan. Currently, the pool is 5000 square metres and 3750 cubic metre in volume.

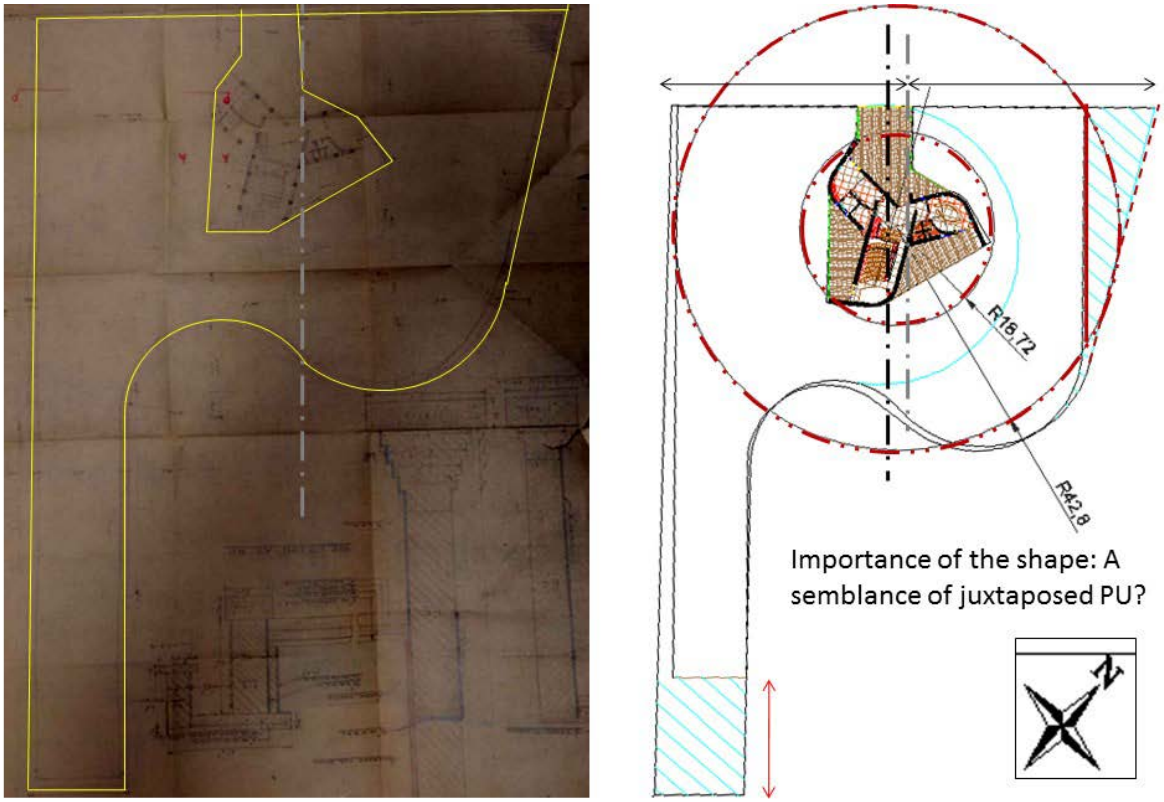


Figure 28. Analysis of the pool geometry indicates the corrections made to ensure complete reflection and possibly a conscious refinement to reflect the alphabet P

The pool layout delineates both the physical and visual extents, limiting chances of future encroachments into the 'view-shed' for Gandhi Bhawan. The plantation of Roystanea Regia, along the pool, accentuates the planning axis and minimises leaf litter in the pool itself. A vast lawn separates the pool from the surrounding buildings and evergreen trees have been planted in the vicinity.

3.3 Form and Exterior Envelope of the Gandhi Bhawan

> **The view of the roof will that be of lotus when looked from any side.**
>
> (Ram, 1958 in Detailed Estimates for the Construction of Gandhi Bhawan, Architect's Office, Panjab University)

The form of the Gandhi Bhawan, often ascribed as the abstraction of a lotus is thus interpreted as a juxtaposition of Gandhi's uncompromising ideals of truth with his ideas of peace and harmony. While the former is represented in the sharp angularity of the roof form of the building, the gentle rounded curvilinear volumes signify the latter. The building is described as an abstraction of a lotus flower, not only in contemporaneous reviews (Mathur1963) but also in later studies of the building (Jackson and Bandopadhyaya 2009). Other critiques of the Gandhi Bhawan have remarked on its 'pin-wheel' plan that results in a dynamic form when coupled with the steep slopes of the roof form

(Jeet Malhotra). There appears to be centrifugal force acting upon the centre of the building with each of the three wings in constant motion. The roof form, which slopes from five metres to 10 metres at the centre, further enhances this appearance.

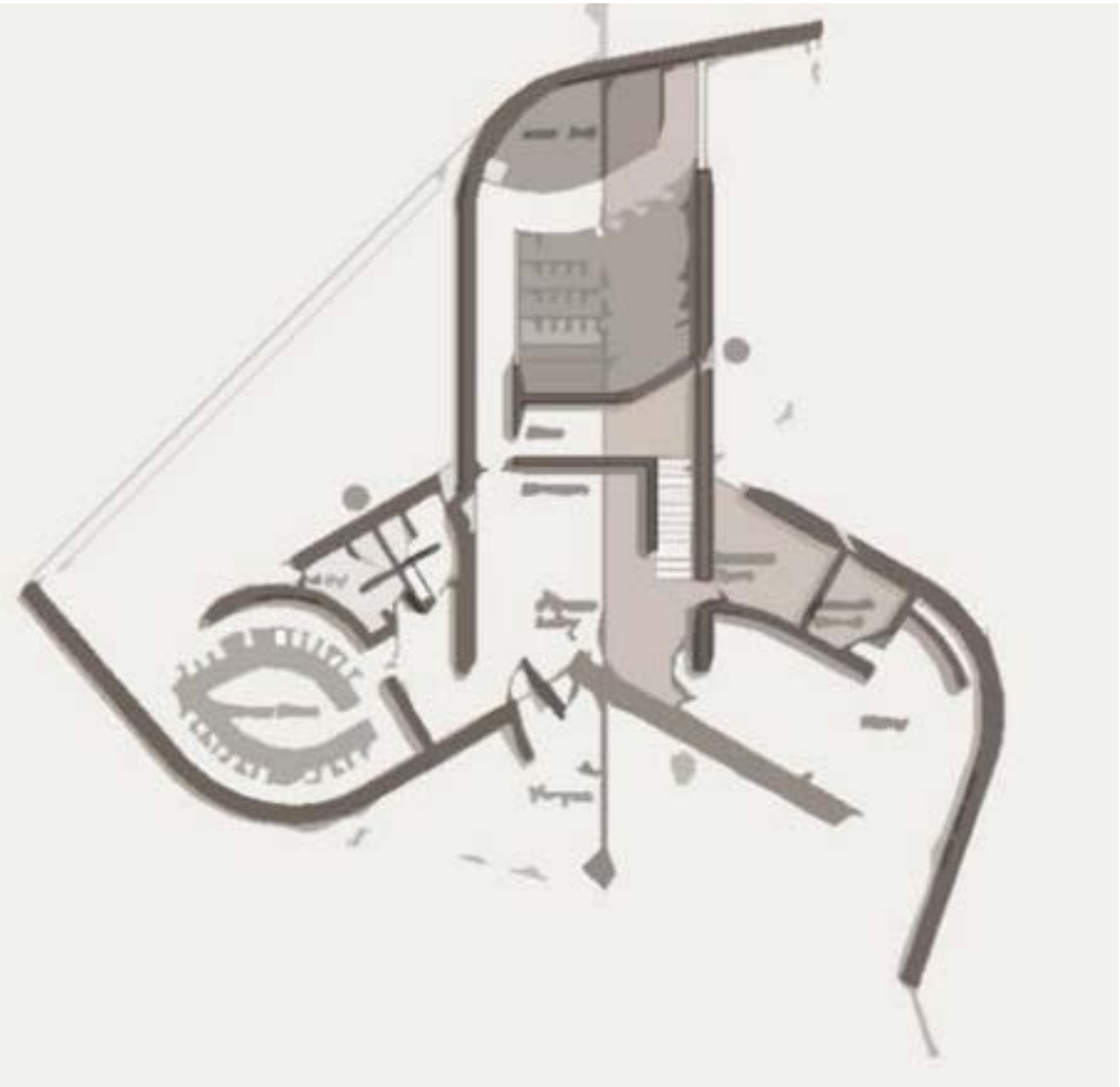


Figure 29. The form of Gandhi Bhawan has been likened to a pin-wheel (according to his contemporary- Architect Jeet Malhotra) as well as to a lotus by many others

In contrast, this with the regimental geometry of the surrounding structures such as the Fine Arts Museum or the University Library, the Gandhi Bhawan offers a formal counterpoint. At the same time, the use of similar proportions of the cladding panels and the fenestration tie together these disparate structures. Emphasising the centrality and introverted nature of the centrifuge, exterior facades were largely designed as unbroken surfaces, with vertical glazed panels further emphasising the junctions of the three wings. These glazed portions in the walls in the Gandhi Bhawan are scaled with the clever use of precast concrete fins that also help in shading the building against the glare of

the sun. Their design belongs to the genre of 'Undulatory Glazing,' which was introduced by Le Corbusier in the Capitol Complex and which continued to be used in most early buildings of the city. The Gandhi Bhawan envelope is inscribed between two equilateral triangles, of side 105 feet (32 metres) approximately and 130 feet (40 metres) approximately for the outermost vertices and curvilinear edges. The centre of this triangle acts as a pivot for other key formal elements of the structure, including the roof form and the sculptural lighting features, which also form the vertices of an equilateral triangle of side 42 feet (13 metres), rotated around the centre. The entire structure height is also approximately 42 feet (13 metres), which is the highest point of the building's roof form as well as the highest point of the skylight that faces north but also acts as the approximate vertex of an equilateral pyramid. While no conceptual drawings have been located to confirm this hypothesis, nevertheless, this geometrical analysis reinforces the idea of a centrifugal force as a design metaphor. Furthermore, the idea of "Three" that underpins the entire building's planning and layout is strongly emphasised using this diagrammatic development. The conceptual proportional system Le Modulor that was developed by Corbusier and his associates does not reveal itself through an analysis of the elevation systems and the glazing. However, there is an underlying grid for the glazing represented in the flooring of the platforms.

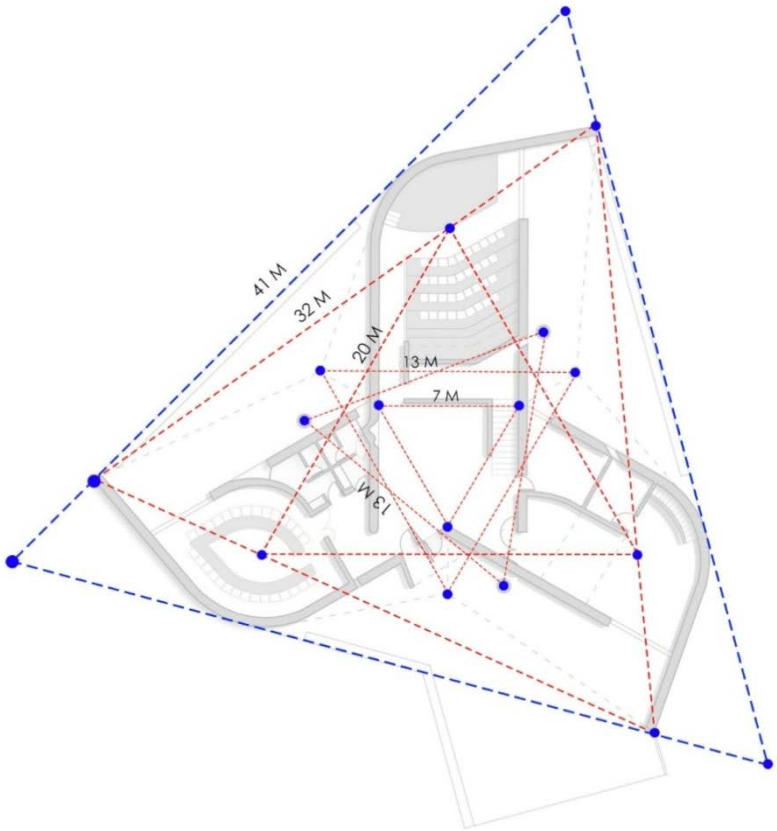


Figure 30 Schematic sketch showing the building proportion with equilateral triangles in which blue triangle is indicating the roof profile

Emily Polk remarks that

> **To protect from the sun and still admit maximum light, the roofs may be designed like butterfly wings, lifting from the centre, allowing adjustable windows at the high edge to admit air and light and keep out the sun. Sun fins extend down pass wall windows to exclude the direct sun, admit light and air.**(2016)

Each of these devices has been used to great effect in the Gandhi Bhawan. The skylight allows in large amounts of natural light and offers the opportunity for ventilating the building's large internal volume. In addition, the massive wall thickness allows the smaller openings to be deeply recessed, creating a play of solids and voids in the otherwise unforgiving mass of the external envelope. It is a fair assumption that climate, natural light and acoustics played a pivotal role in refining the form for the Gandhi Bhawan.

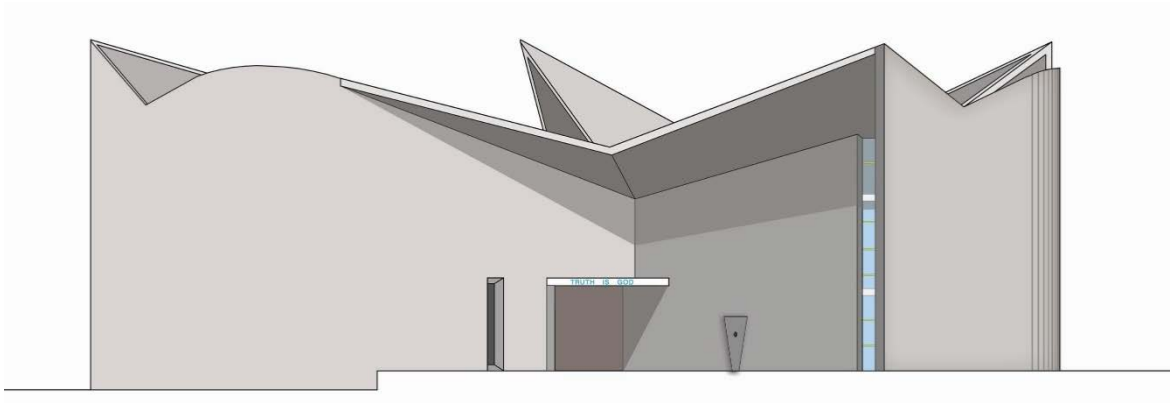


Figure 31. Front elevation of Gandhi Bhawan showing roof form and recessed entrance

3.4Interiors, Furniture and Artwork of the Gandhi Bhawan

The interior detailing of the building lives up to the Modernist tradition that was introduced in Chandigarh by Le Corbusier in his Capitol.The large wooden doors, recessed cove lighting, carefully concealed services are all trademarks of the then prevailing Modern style in Chandigarh. Added to these was the use of primary colours in individual elements to add a sense of playfulness to the starkness of light grey-white façades.

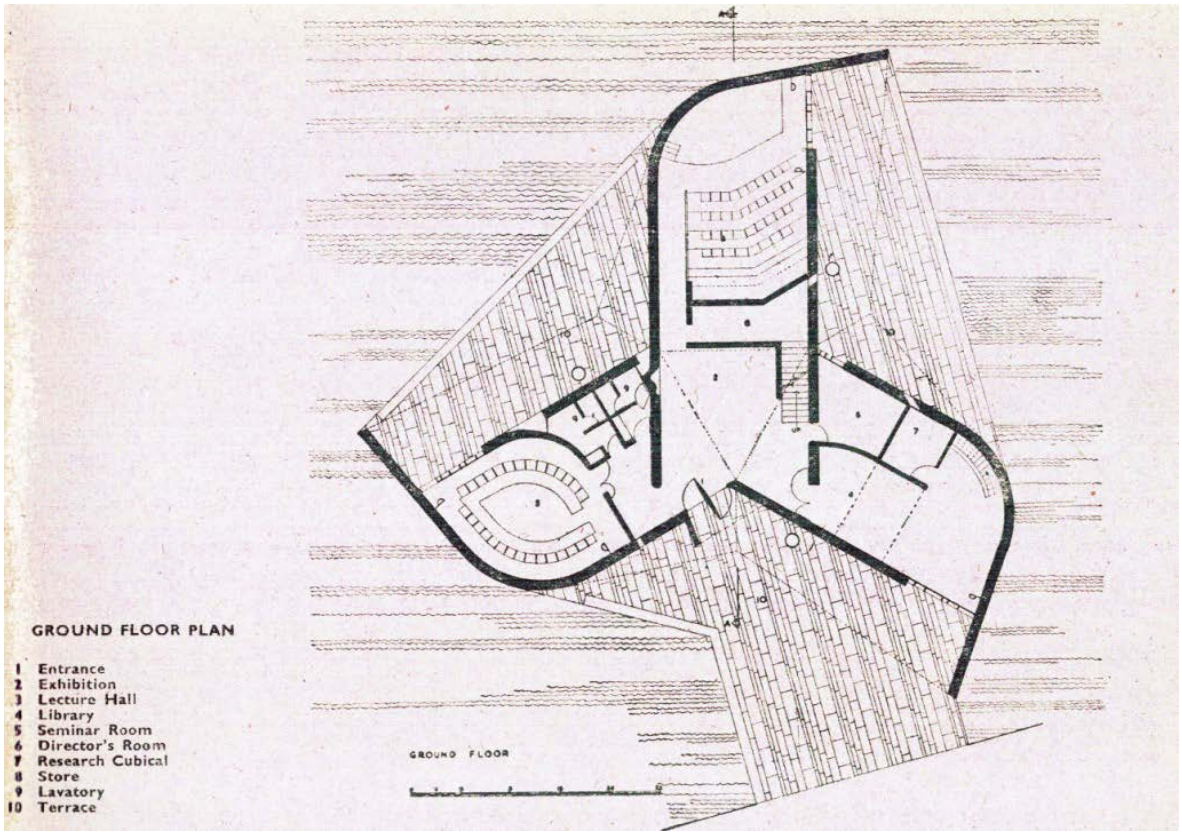


Figure 32 Original Layout plan of Gandhi Bhawan (Source: CCA Archives, Montreal)

The interior spaces of the Gandhi Bhawan are legible to the visitor upon entering the large foyer, which immediately directs the visitors to the ante-spaces of the three wings -- the Committee Room on the left, the Lecture Theatre / Auditorium in the centre and, the Library on the right. The smaller spaces, such as the Director's Room and the toilets are set into the wings. The height of the Gandhi Bhawan allows for a mezzanine floor that was built in the Library and used for the Lecture Hall. As a stark contrast to the exteriors, which are predominantly whitish-grey with a restrained usage of red and yellow colour for the openings, the interiors are executed in multiple colours including pink, turquoise/cyan and blue. Paint samples reveal that these colours have been changed over time, but the basic concept of the colour scheme has remained unaltered.

> **Jeanneret began by creating the furniture for his own use. Drawing on his observation of traditional Indian crafts, he had seats made of bamboo, straps, and cord, a coffee table whose top was a slice of mango trunk, strap beds that were an interpretation of the light, airy beds Indians set up outdoors when the nights are too hot and other items. The simple vocabulary he used for these pieces laid the groundwork for a more comprehensive approach to the furniture he would later take for Chandigarh's various public buildings...From 1955 to 1965, Pierre Jeanneret devoted most of his time to Panjab University designing both the buildings and the furniture; the campus furnishings**

represented the largest single order for Chandigarh. Jeanneret devised a range of cane chairs with a compass base, together with cafeteria tables, desks and a very handsome illuminated library table.(Saguin, 2011)

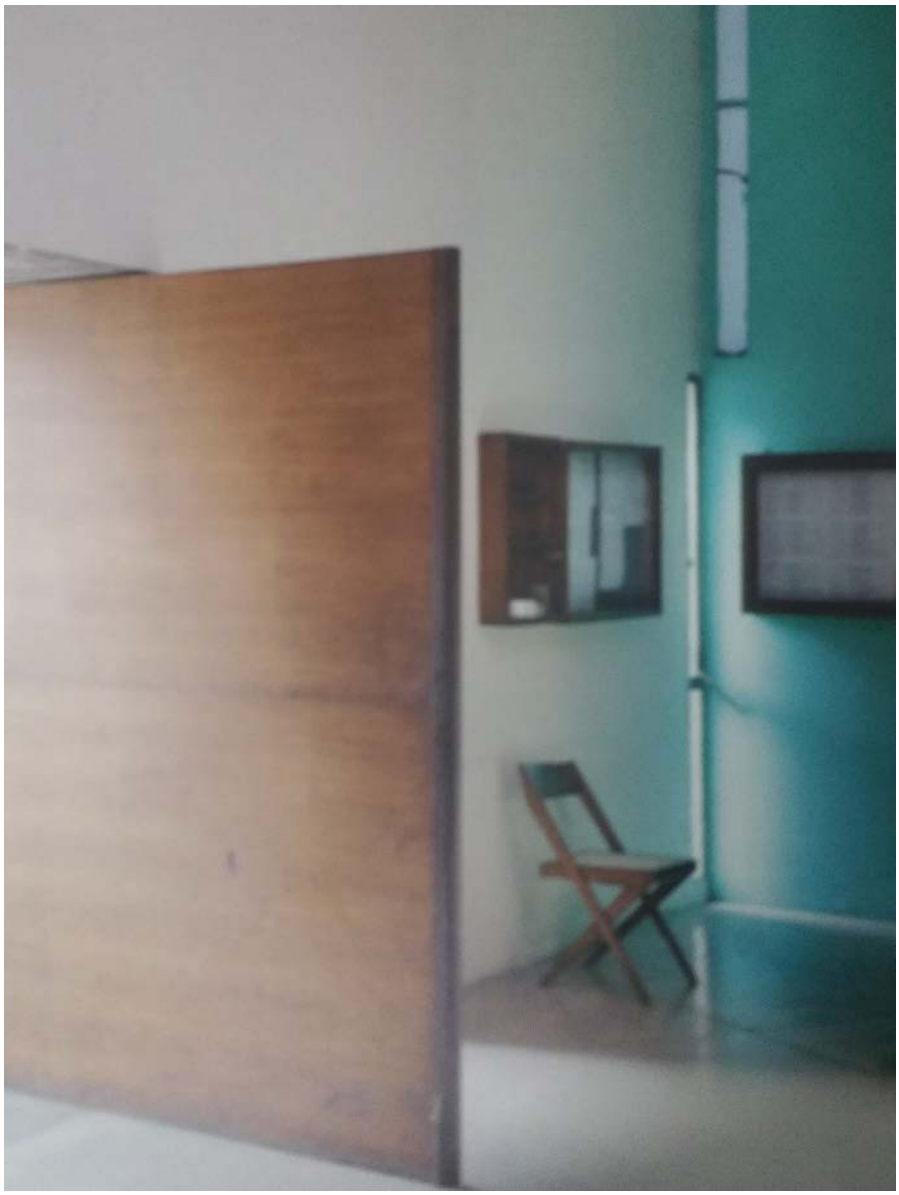


Figure 33.Interior of Gandhi Bhawan showing entry door and colour wall behind (Source: Galerie Patrick Seguin, 2011)

The furniture design in Gandhi Bhawan follows the same principles as observed in Jeanneret's design of furniture across the Panjab University. It is simple and elegant, with clear proportioning systems and is executed in teak wood. During the course of this conservation planning, the Panjab University has consciously made efforts to relocate most of the original furniture back into the building. The original table with folded legs in teak is still intact.

A large quantum of furniture in Gandhi Bhawan was inbuilt to fit into the design. This list includes the auditorium chairs, though many of the original chairs have been now replaced altogether with new ones following the same style. Pierre Jeanneret's original sketch of these chairs and archival images of the auditorium give some clue to the original seating spaces. The conference room table has similarities to the Ministers' tables in Corbusier's Secretariat, following the contours of the curved room and is still intact. The movable furniture included chairs in teak wood and bamboo cane. A detailed assessment is included in later sections and annexures.

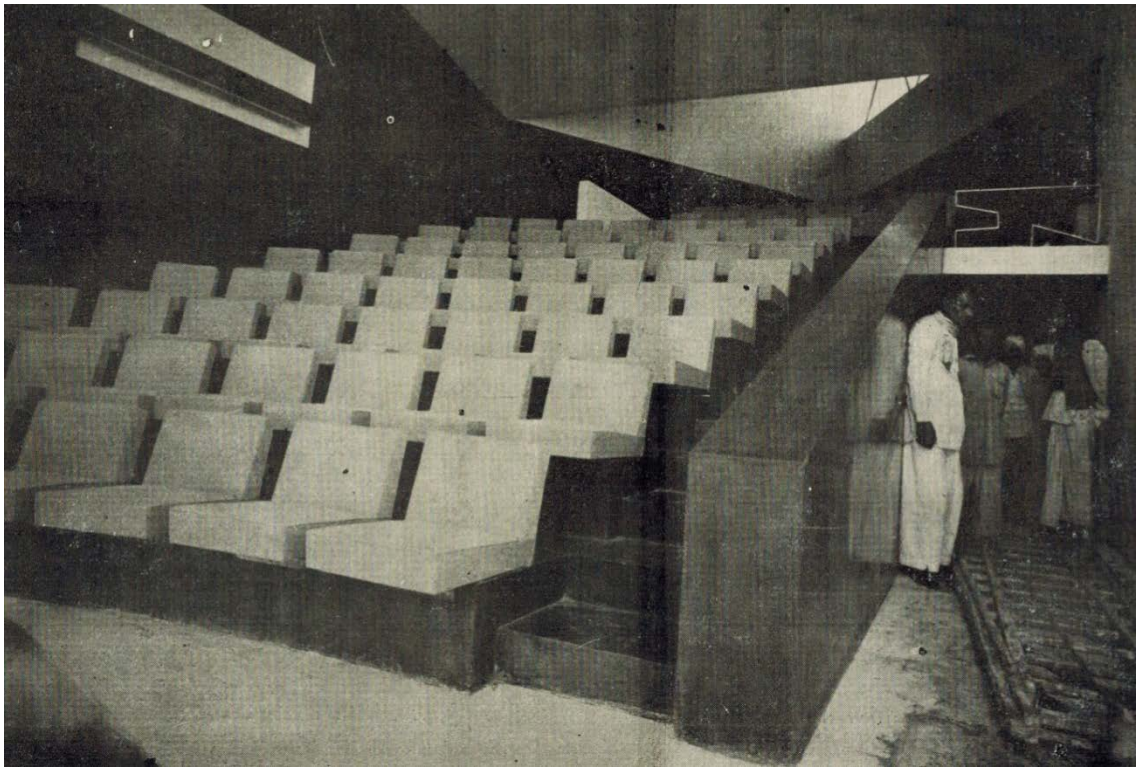


Figure 34. Archival image of auditorium showing original seating (Source: Panjab University Brochure)

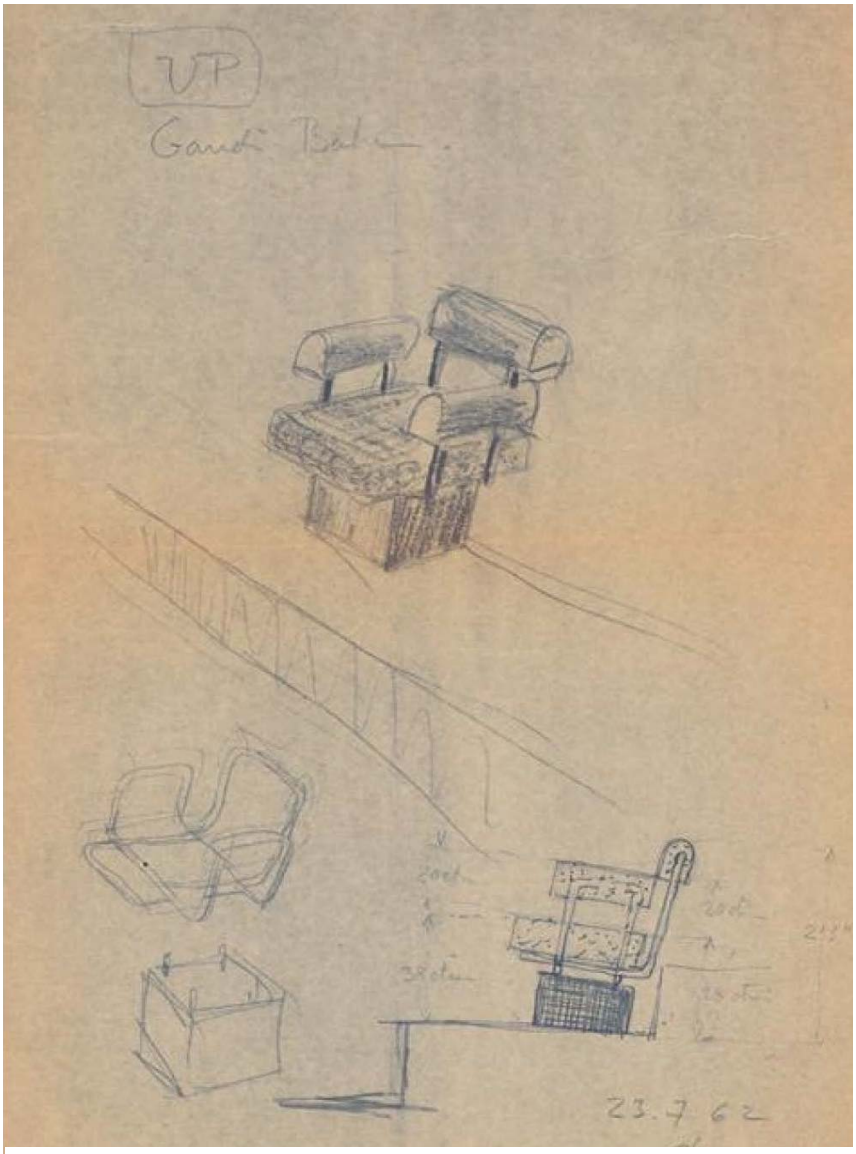


Figure 36 Sketch of auditorium seating by Pierre Jeanneret (Source: CCA Archives, Montreal)

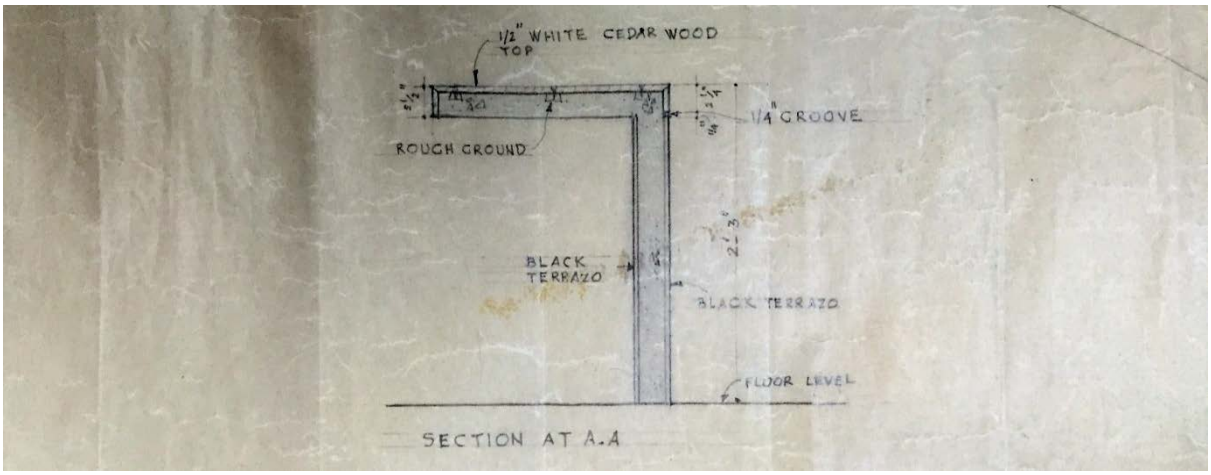


Figure 35 Original drawing of the built-in concrete and terrazzo table in the seminar room (Source: Architect's Office, Panjab University)

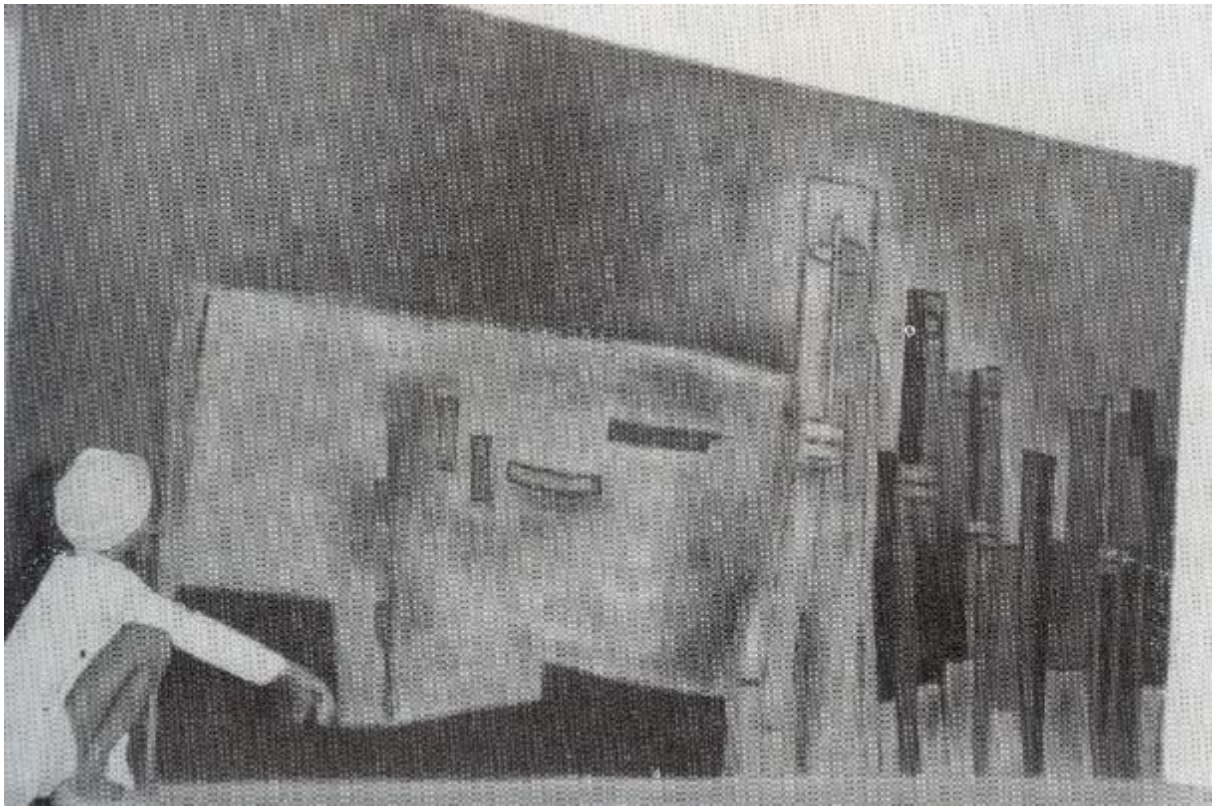


Figure 37. Archival image of mural at Gandhi Bhawan (Source: Jeet Malhotra as published in Marg, 1962)

"Inside the Bhawan, on the front wall, facing the entrance, one cannot fail to notice a mural painting by artist Satish Gujral[8]. This is a beautiful work, which expresses 'awakening of Indian masses and their advancement towards nationhood'. The artist has displayed this idea through the medium of rays, breaking into space. The mural forms a focal point when one enters the Gandhi Bhawan and is an abstraction of modernity and nation-building executed by one of India's leading artists.

[8]A well-known figure of the post-independence Indian Modern Art

3.5 Materials and Construction Technologies used in Gandhi Bhawan

> **If there were a cataclysm and only a handful of architects were left on earth among the stones and trees, they would die very quickly because they would not know how to use a tree or a stone. But I think, Jeanneret, whatever happened, would always build something… although I'm not sure whether Corbu would.**
>
> (Jean Prouve' description of Pierre Jeanneret, 1982)

The façade of Gandhi Bhawan is deemed iconic due to its structural innovations, exterior finishes and profile. The building envelope comprises of concrete columns and beams with brick infill as the walls that support a concrete roof. The combination of concrete and brick make it a composite structure. This section describes the building elements and their locations and materials used.

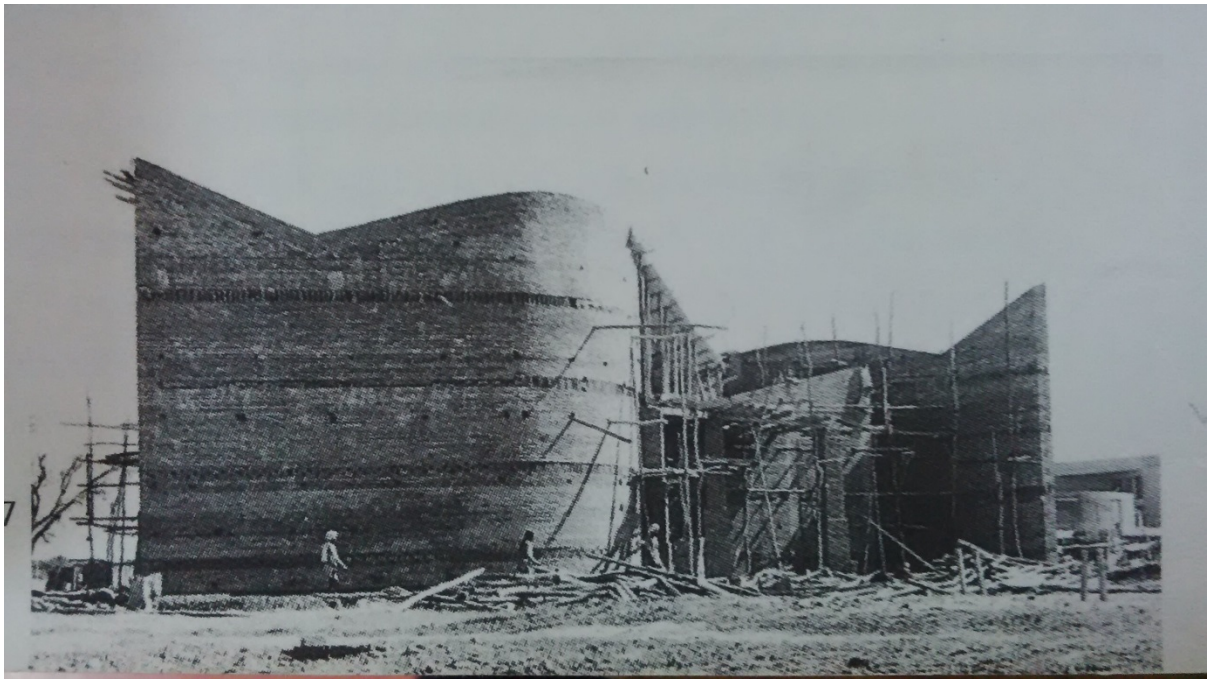


Figure 38.Construction of Gandhi Bhawan in progress. Bamboo scaffold, ring beams and masonry walls are visible. (Source: Joshi 1999)

The materials and technologies that were used in the Gandhi Bhawan show a departure from the commonly used systems of construction within the campus during the time. While the external building surfaces are covered with cladding panels, just as was done in most of the academic buildings located in its immediate vicinity, the actual cladding materials used are quite distinct. The thickness of walls in the external envelope vary between 590-630 mm, thereby indicating that many of the construction systems were being used for the first time in Gandhi Bhawan. According to members of the original team, masons and specialised labour was sourced from Rajasthan,

particularly for the flooring and cladding of the Gandhi Bhawan, while the carpenters and labourers for timber work and furniture were sourced locally (Singh 2016, refer annexures).

The specifications for materials for the structure can largely be traced to the Panjab Public Works Department Schedule of Rates published in 1958. Brick was sourced locally. The other local material used extensively was Ghaggar sand, sourced from a neighbouring river. Further details on the exact specifications of material used can be seen in the original specifications documents. Archival research was undertaken, along with on-site surveys and testing, to determine the exact nature of the structural system and the materials used.

3.5.1 The Structure

The basic structural system as laid out in the construction drawings and the specifications can be broadly described as a combination of a framed reinforced cement concrete columnar structure with masonry infill that has been used along with load bearing masonry walls. The structure is reinforced with ring beams that tie together the external envelop of the building. The entire structure sits on what is essentially a raised platform, which sits within the pool. According to the specifications document, since the original depth of the pool was envisioned to be six feet (1.8 metres) deep, the foundations of certain portions of the masonry walls and columns abutting the pool were designed for a greater depth.

Walls

The exterior walls are 600 mm thick and are composed of brick infill within an RCC frame of columns at 2.8 meters 'center to center distance and horizontal ring beams at approximately 1.8 metres. The investigations (Infra-red images and RADAR scans) reveal the distribution and organisation of the structural elements as shown below.

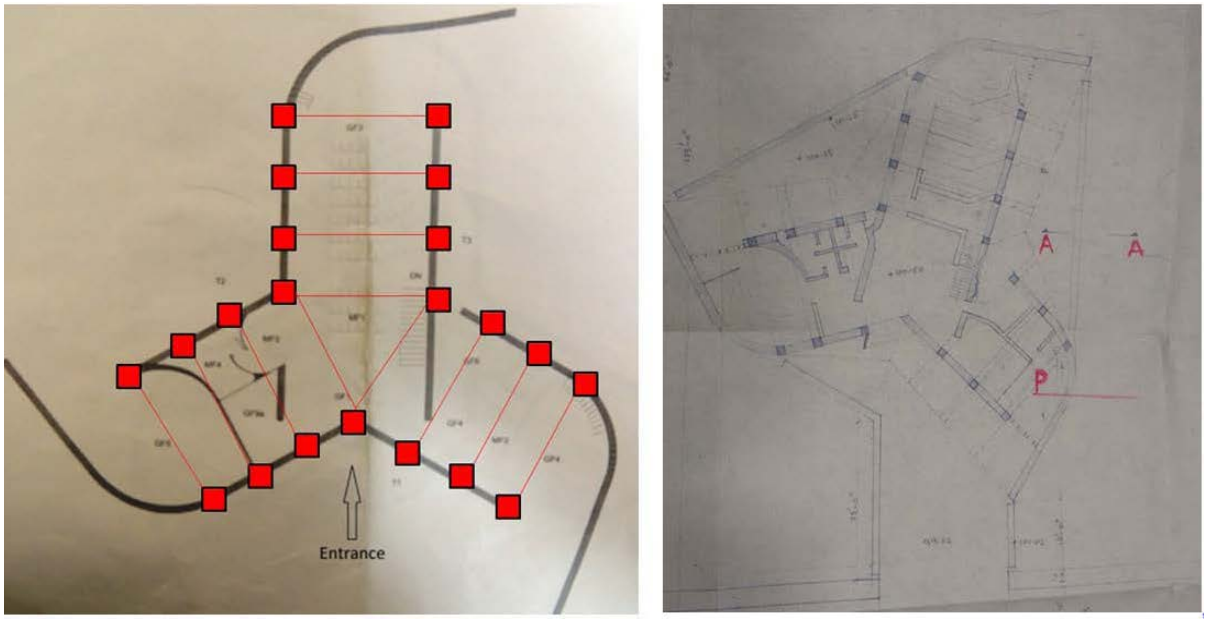


Figure 39.Left: Schematic drawing of locations of RCC columns (IITS Chennai) that corroborates the original archive drawings (Source: Archives from the Architect's Office, Panjab University)

The red squares represent the locations of columns and the lines indicate the inverted beams on the roof. Three walls on each wing extend beyond the structural system of columns and are 630 mm thick (due to cladding on both sides). These walls are composed of brick with rings beams paced horizontally, continuing from the main structure. Presence of concrete beams and columns as part of the structural system in the building locations have been confirmed using IR scans and RADAR scans, and these findings are commensurate with archival documents of architectural and structural drawings.

Roof Form

Figure 40. View of the roof form of the Gandhi Bhawan

The roof form that spans the interior spaces, slopes from 5metres to 10metres at the centre of the building, creates the notion of 'the structure as a sculpture'. The roof is a sandwich slab system in RCC, with brick-on-edge used within the gaps. According to Mr. Joga Singh who was present when the roof of the Gandhi Bhawan was being laid, setting out the complex form was a challenge, but was undertaken systematically, using bamboo scaffolding and timber formwork. The roof of the building is composed of a network of RCC beams placed in a grid. IR scans confirm the presence of this unique structural system in roof with air cavities. But, the number of beams and pedestals observed are not commensurate with what is shown in archival structural drawings. IR scans taken from above and below the roof of the structure confirm the presence of reinforced concrete beams and brick stiffeners in the roof. However, the total number of beams and stiffeners seen in the IR scans are less than that suggested by the structural drawings.

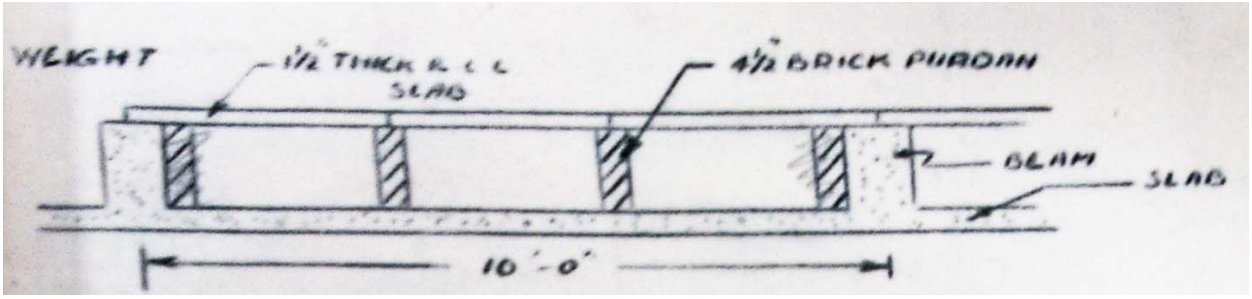


Figure 41.Excerpt from the Estimates File submitted for Gandhi Bhawan (Source: Architect's Office, Panjab University)

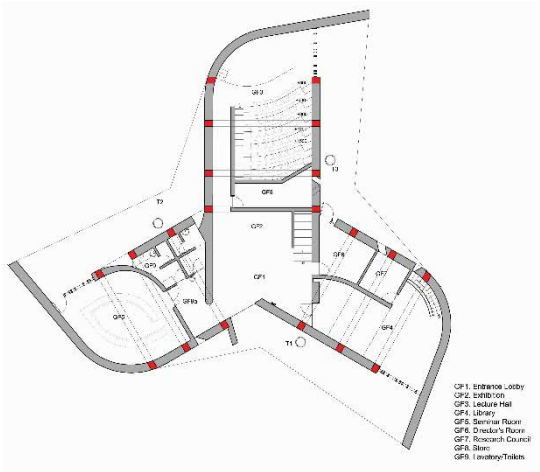


Figure 42. IR Scans showing the location of grid in roof form which is different from what is represented in the archival drawing (Source: IIT Madras)

3.5.2 The Envelope

The iconic nature of the Gandhi Bhawan is also due to its contrasting white colour that sets it apart from its surrounding structures. However, originally, the structure was to be clad in red Agra sandstone to match the Fine Arts Building and other similar structures (Specifications Document 1959). However, keeping in mind its symbolic value, it was felt that Gandhi Bhawan needed a different material vocabulary. The inspiration for the use of white has been attributed to the use of marble in Salim Chishti's tomb in Fatehpur Sikri (Bahga and Bahga 2000) and to represent purity and truth reflecting Gandhian principles. Marble was discussed as a possible material choice for Gandhi Bhawan as well, but the final decision was to use grit-finished concrete panels, with white marble/ river stone chips set in white cement. As a result, the structure has a textured white surface. Panels of varying mixes of grit were tested on site.

Two types of panels are used. These measures 300 X 900, 40mm thick (Type A) and 600 X 230, 90-100mm thick (Type B). The Type A, or the bigger panels, are placed next to each other, along the width, and are stacked over each other in two rows. A row of Type B or narrow precast panel placed along the length is then located over the two rows of type A panels. This pattern repeats itself all over building with an exception of the bottom and the top level. The total no of Type A panels are 2700 and type B panels are 660, total no of cladding panels are 3350 .The panels are installed with help of mortar at the back and brass clamps that connect panels together on each side.

The panels are 40 mm thick, composed of two layers; first an RCC, 35mm thick layer that supports the grit finish. The latter is 5mm thick, and applied as the finishing layer of aggregate set in white cement. This top layer is also reinforced with metal bars. As a result, the structure has a white textured surface. During the time of construction, panels of varying mixes of grit were tested on site.

Base

The base of the building that also forms the plinth is located in a large pool. It is made of concrete and is covered with cement plaster. It is, in all likelihood, tied to the columns and beams of the structure but can only be ascertained after excavating a section until the foundation.

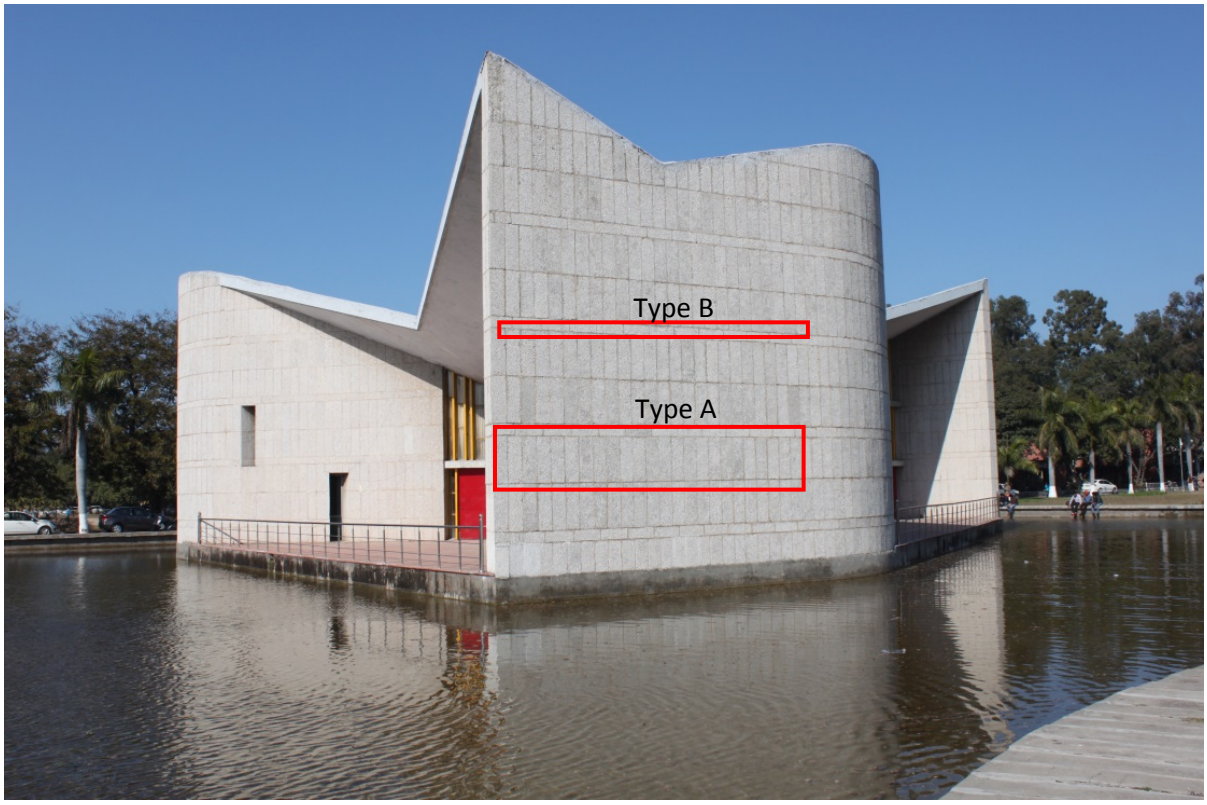
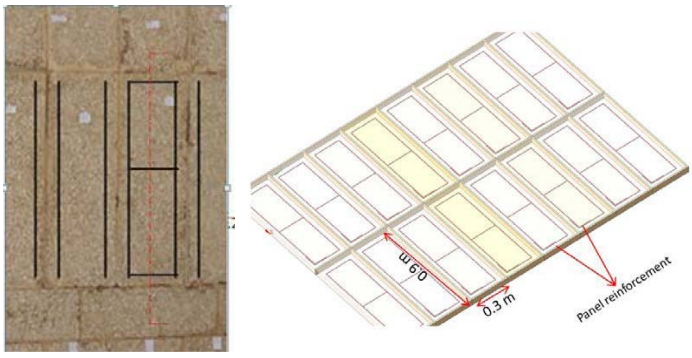


Figure 43.Types of panels used



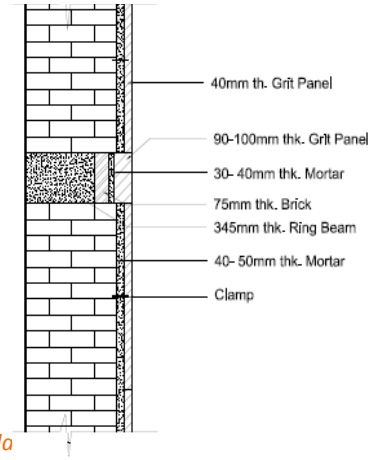


Figure 44.Location of the steel reinforcement and Schematic section of the cla

3.5.3 Interiors

The internal walls are composed of bricks and RCC. Internally, the spaces are finished in cement plaster and paint. The use of vibrant colours in the interior volumes has been maintained in successive repairs and upgradation exercises undertaken in the building, though there may be minor variations of hue and intensity from the original colour scheme. Some walls have a number of openings for doors and windows and some are large plastered surfaces. All the doors are made of wood and have the same design with an exception of main door. The window openings are located within concrete fins that have glass fixed between these fins. A triangular skylight is also present in the auditorium area. The building is covered with white cement terrazzo flooring. Black cement terrazzo is present on floor as well as walls in the auditorium area.

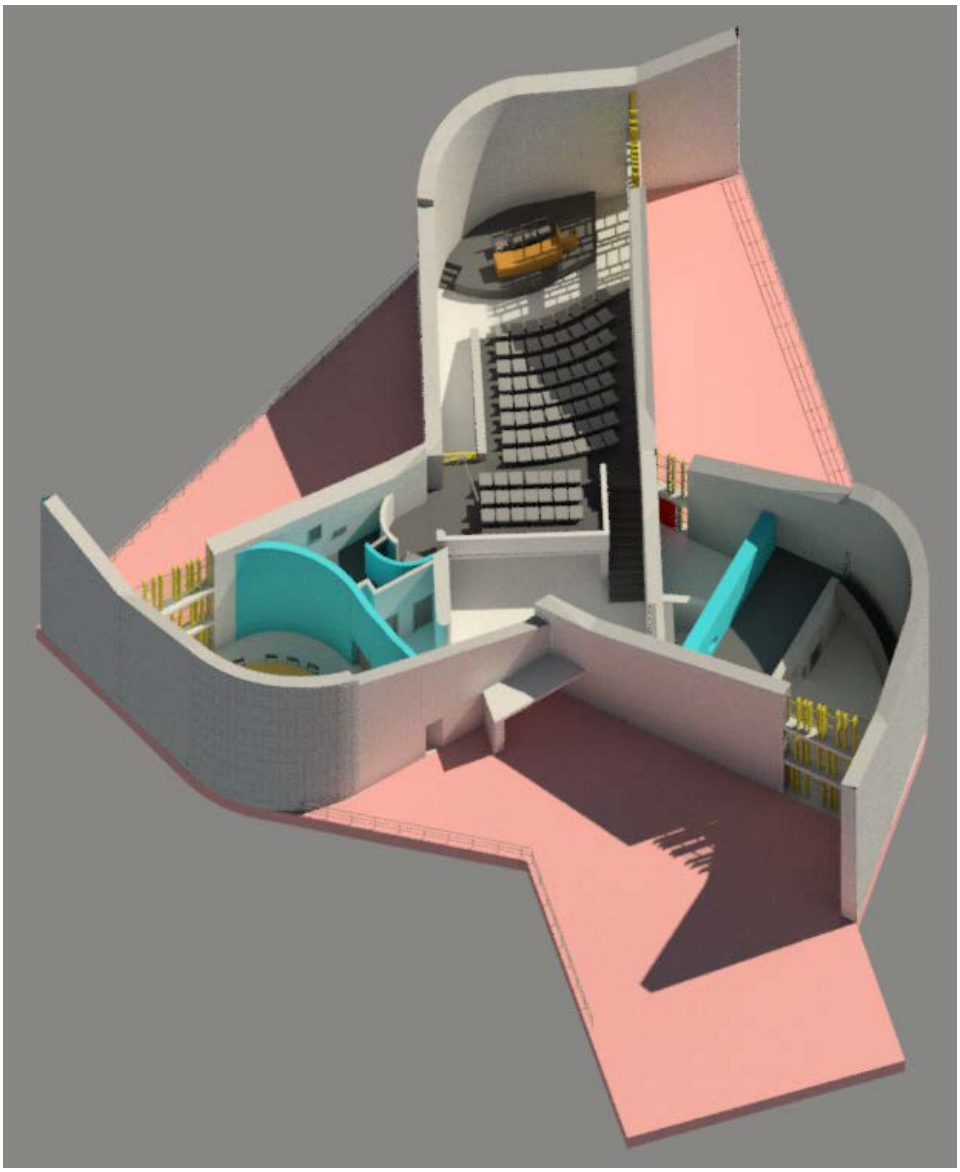


Figure 45 3D model of Interior spaces of Gandhi Bhawan (Source: DRONAH)

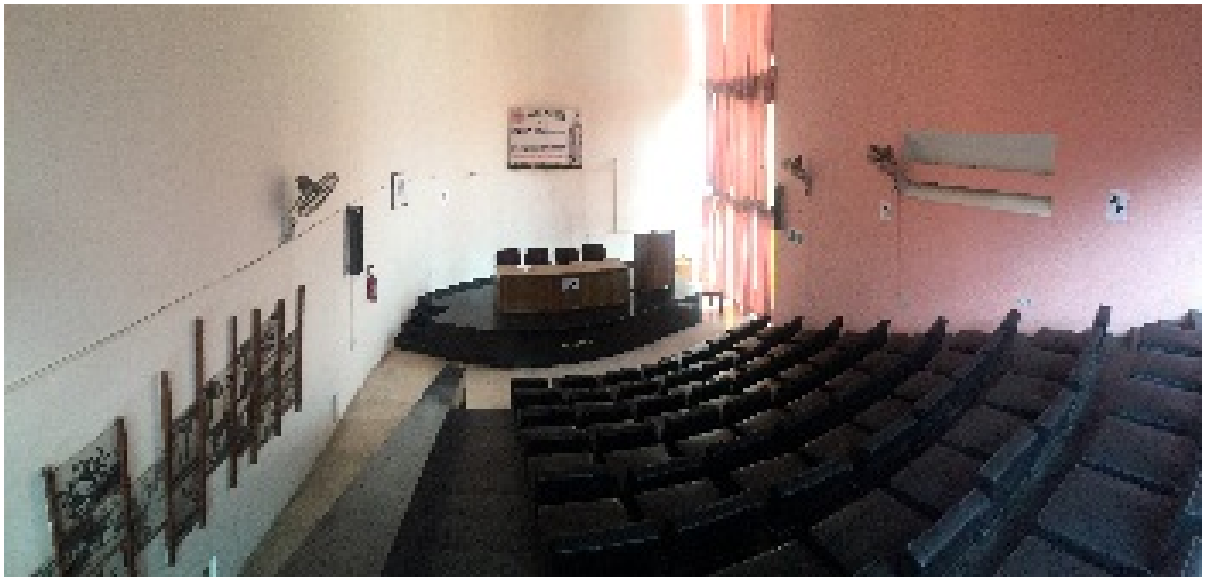


Figure 46 Interiors of Auditorium space of Gandhi Bhawan

Figure 47 Interiors of Committee room in Gandhi Bhawan

3.5.4 Windows and Doors

The external doors and glazing details use cement concrete fins and reveals and mild steel door and window frames. The internal doors have been made in CP Teak. The sizes of the exterior openings are not standard. The cement concrete fins are a typical detail used in many structures designed by Jeanneret within the campus and the colour scheme of the doors and windows is typical of the Modernist buildings in Chandigarh where primary colours have been used to break the monotony of a single colour like white or the grey of exposed RCC surfaces.

Figure 48. Doors and Windows show contrast of primary colours against the stark grey-white facade

3.5.5 Flooring

The exterior flooring of Gandhi Bhawan was originally executed in hand chiselled red sandstone set in a bed of cement mortar, in a specially designed pattern with panels of varying sizes based on the Modulor. This just as the 'Undulatory Glazing' was also ubiquitous in the early years of building Chandigarh. The flooring has since been replaced with new slabs of red sandstone. Though it is machine cut, the original pattern appears to have been maintained.

The interior flooring just as in all Jeanneret constructions not restricted by cost is a combination or black and white terrazzo. According to Joga Singh, the black pigment for the terrazzo flooring was especially imported from Belgium. Thin brass strips have been used to separate panels.


Figure 49.Flooring types in interiors and exteriors of Gandhi Bhawan

3.5.6 Special Details


Figure 50. Details of Cove lighting & Mild Steel Railing

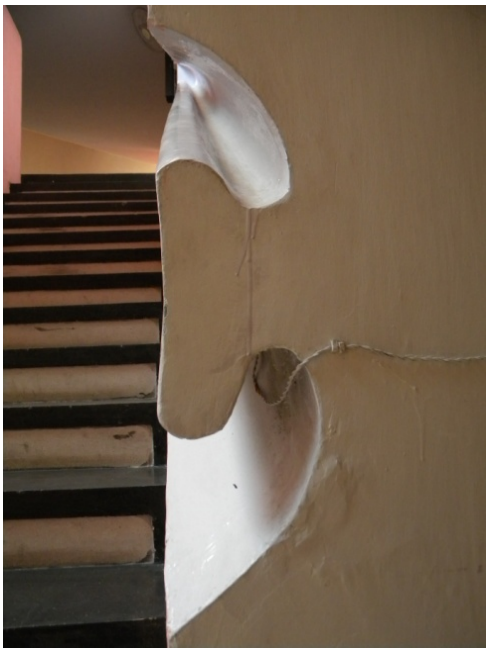


Figure 52 Details of Cove lighting in wall and Railing

There are several details, such as the mild-steel railing, the cove lighting, the large light fixtures in the library and the sculptural light fixtures outside the structure that contribute to the overall architectural significance of the Gandhi Bhawan. Each of the details has been meticulously drawn and executed on site.

Figure 51 Sculptural light fixture

It is interesting to note that the concept of up lighting has been used to reverse the appearance of the building at night against that during the day when the sun-drenched surface would be in dark and the deep-set openings would glow under the impact of the interior lighting. Positioning of the fixtures below the tail-end of the wider roof projection ensured spread of the illumination to the entire ceiling, again lighting up a surface that would otherwise be shaded during the day. The funnel shape of the fixture heightened the dramatic effect and its reflection in the pool, acting as a 'black mirror' at night, would make a climax setting. The technique of indirect lighting adopted by concealing the source of light is also noteworthy.

4. ESTABLISHING SIGNIFICANCE FOR GANDHI BHAWAN

4.1 Recognising Modern Heritage

Since the last two decades, various approaches have been used to evaluate and identify twentieth century cultural heritage through international organisations and established frameworks such as:

- DoCoMoMo, the International Committee for Documentation and Conservation of Buildings, Sites and Neighbourhoods of the Modern Movement
- The Modern Heritage Programme of UNESCO's World Heritage Centre
- ICOMOS-International Scientific Committee on Twentieth-Century Heritage
- Australian National Historic Themes Framework
- English Heritage's thematic approaches to listing twentieth century heritage
- The International Committee for the Conservation of the Industrial Heritage (International Scientific Committee of ICOMOS International) thematic studies on industrial heritage
- The Cultural Landscape Foundation's thematic approaches for the assessment of twentieth century landscapes
- The International Union of Architects' twentieth century Architectural Heritage Repository website

The Global Strategy of UNESCO is an action programme designed to identify and fill the major gaps in the World Heritage List. It encourages more countries to become States Parties to the World Heritage Convention, relies on regional and thematic definitions and analyses of categories of heritage of Outstanding Universal Value, and promotes the development of nominations of under-represented properties for inscription on the List. During the 1990s several international symposia and conferences took place discussing the dire situation with regard to the recognition of the cultural-historic significance of 20th century architectural heritage, the principal reason why it was lacking any formal protection in many countries. These debates and their recommendations for action certainly helped in raising the awareness of decision makers and the profile of this heritage at the national levels. However, the question that remained concerned the possibilities for a stronger international recognition and protection, in particular through the 1972 World Heritage Convention which had proved to be a powerful organizing tool and platform for advocacy.

> **In order to examine this question, the International Council on Monuments and Sites (ICOMOS), one of three Advisory Bodies to the World Heritage Committee, commissioned the Working Party for the Documentation and Conservation of buildings, sites and neighbourhoods of the Modern Movement twentieth Century Heritage and World Heritage Programme.**(Van Oers, 2004)

At the start of the Programme in early 2001, the number of properties and sites of Modern Heritage dating to the late nineteenth and early twentieth centuries on the World Heritage List numbered twelve. Five years later, at the end of the programming, this had doubled to 23, which demonstrates the programme's remarkable success. In February 2003, when UNESCO's World Heritage Centre held its "Regional Meeting on Modern Heritage, for Asia and the Pacific" in Chandigarh, only one of India's 19 Cultural World Heritage Properties belonged to this period, with none on the Tentative List. Today, the proportion has risen to three Modern Heritage properties in 27 Cultural World Heritage Sites, while another six figure on the tentative List.The recent trans-national inscription of the 'Architectural Works of Le Corbusier' jointly by seven nation states including the Capitol Complex at Chandigarh by India is indeed laudable and most encouraging for Modern Architecture.

4.2 Statutory and Policy Frameworks

Despite the above, the cultural significance of Modern heritage in India is not yet fully recognised and conservation architects are still struggling to define the scope of Modern heritage of the country. Considering the vast expanse of unprotected heritage in the country, it is not surprising that very few of the iconic Modern structures in India are protected and even fewer that are being consciously conserved. The national protecting body, the Archaeological Survey of India (ASI) or, its counterparts in the States known as State Archaeology Departments, only protect 'Ancient Monuments and Sites' more than 100 years old. This particular clause in the Heritage Legislation at National and State level in India bars most of the Modern structures to be classified as heritage. However, beginning with a very bold initiative by Mumbai in 1996, several other city governments have undertaken exercises for grading and protecting numerous historic buildings and precincts not considered Ancient Monuments.

The list includes Chandigarh that was planned after Independence as part of Nation Building and Modernism in India. The Chandigarh Master Plan, in particular, acknowledges the city planning and modern buildings across the city as heritage under three categories of Heritage Zones, Heritage Precincts and Heritage Buildings that are graded and protected as Grade I, II and III based on their historical and cultural significance. The city administration is consciously working towards

conservation of various heritage buildings categorised under Grade I, especially so the iconic exposed concrete structures of Le Corbusier's Capitol Complex post its recent inscription on the World Heritage List. All listed heritage zones, precincts and structures require approval of a Special Heritage Committee before any changes/interventions can be undertaken.

The Gandhi Bhawan has been categorised as a Grade I Heritage building categorised in the Chandigarh Master Plan. As per guidelines under this category, any major intervention/changes in the exterior or interior need to be approved by the Special Heritage Committee of Chandigarh. Panjab university is well protect and is in buffer zone of heritage buildings categorised in the Chandigarh Master Plan. Therefore, this Conservation Management Plan will be submitted to the Committee for their approval. At the National Level, recently the ASI has also outlined criteria for 'National Cultural Heritage Sites' that identify them of Outstanding National Value. Clearly, Gandhi Bhawan satisfies the criteria that would qualify it under the National Cultural Heritage Sites. However, this listing programme is yet to be made operational.

4.3 Establishing Cultural Significance

The proceedings of the Expert Meeting 'Developing a Historic Thematic Framework to Assess the Significance of Twentieth-Century Cultural Heritage: An Initiative of the ICOMOS International Scientific Committee on Twentieth-Century Heritage' held in 2011, identifies various themes or phenomena under which various processes of the twentieth century can be classified and assessed. Gandhi Bhawan is located in two of these frameworks; namely (i) the main theme of 'The role of government and changing approaches to governance', and its sub-theme of 'Education' as well as (ii) the main theme of 'Culture and Society' and its sub-themes of both 'Cultural Institutions' and 'Memorials'. **Besides these two themes that associate the significance of Gandhi Bhawan with two important thematic processes of 20th century India, i.e., 'National Identity' and 'Campus Building', the third and the most important aspect is that Gandhi Bhawan belongs to the genre of 'urban architectural ensemble' as part of the Panjab University Campus, which is a testimony of the intercultural and transnational exchange in Modern architecture at the global level.**

Gandhi Bhawan is an outstanding national example of Modern architecture in India that simultaneously illustrates formal, technological and material innovation in Modernism to reflect post-independence ideals of nation building and Gandhian philosophy. At the same time, it represents the category of outstanding Modern architectural edifices in India that signify and represent transnational exchange of architectural ideas, with a long mutual impact on Indian as well as western architecture. It is an iconic sculptural masterpiece designed by the Swiss born French

architect Pierre Jeanneret at the peak of his 14-year long professional practice in India. Strategically placed as a white lotus symbol reflected in a pool of water surrounded by red sandstone structures in the campus of Panjab University, it stands out aesthetically as an outstanding sculptural form. The cultural significance of Gandhi Bhawan is established through:

- Associative and Historic value at national level as Gandhi Bhawan, reflecting Gandhian ideals and principles in its form and function
- Aesthetic value as one of the most exceptional form reflected in a surrounding pool thus adding to the beauty with its unique landscape and setting
- Architectural value as an exemplary example of Modern architecture using innovations in materials, technology, colours, texture etc.
- Intercultural value with its association to the transnational cultural exchange of ideas between Indian and European architects, designers and patrons

Besides these primary values, a more detailed analysis of the attributes of various elements of Gandhi Bhawan, its form, exteriors, interiors, materials, colours, furniture, artworks and landscape are presented in the table on the following page to be used for further assessment and policy formulation.

The following prioritisation of significance and authenticity will form the basis for policies and intervention

- **Exceptional Elements**: Can only be replaced if essential due to their condition and need to be replicated in their original form, colour, material and texture in totality.
- **Elements with High Value**: Material has already been compromised to some extent and can be replaced with matching material as and when required retaining similar colour and texture.
- **Elements with Low/ Medium Value**: Material has been replaced completely due to needs of usage with time and can be replaced again as per requirements ensuring it does not impact and other element of high or exceptional values or overall significance of Gandhi Bhawan
- Infrastructure and services including functional elements such as waterproofing layer, electrical connections and toilet fixtures/fittings etc. fall under low category as they are only associated with use and operational aspects of the structure without contributing directly to any aesthetic or historic value.

Table 2 Significance Matrix of Various Elements of Gandhi Bhawan

Element	Aesthetic Value	Associative and Historic Value	Architectural/ Art Value	Authenticity	Overall Significance
1. LANDSCAPE	**Exceptional**	**Exceptional**	**Exceptional**	**High**	**Exceptional**
a. Pool- Form Layout	Exceptional	Exceptional	Exceptional	High (railing as a later addition)	Exceptional (so railing requires removal)
b. Pool – base panels and side cover stones	High	Low	Low	Low)	Low except in side cover stones (medium) which are original
c. Plantation strategy	High (to allow view)	Low	Low	High	High (has been maintained)
2. EXTERIOR- Form and Structure (including roof)	**Exceptional**	**Exceptional**	**Exceptional**	**High**	**Exceptional**
a. Cladding Panels	Exceptional	Low	High	High (few changed)	Exceptional (only example of this kind)
b. Flooring- Exterior Red Sandstone	High	Low		None (Replaced flooring in 2010)	Low
c. Doors Windows (Exterior)	High	Low	High	High	High
d. Roof surface	High	Low	High	None (Replaced in 2010-11)	Low
3. INTERIOR layout	**Exceptional**	**Exceptional**	**High**	**Medium**	**High**
a. Interior Wall Finishes	High	Medium	Medium	Low (Undergone several changes)	Low (except colour as original is High)
b. Flooring- Interior	Exceptional	High	High	High	Exceptional
Doors	Medium	Medium	Medium	Low	Low

Element	Aesthetic Value	Associative and Historic Value	Architectural/ Art Value	Authenticity	Overall Significance
(Interior)					
Furniture-Fixed **Wooden framework**	High	High	High	Medium (changes)	High
Furniture-Movable	High (of original)	High (of original pieces)	High (of original)	Low (at present)	High (if original is brought back and restored)
Artwork-Mural	Exceptional	High	Exceptional	High	Exceptional
4. SCULPTURAL DETAILS (Lighting exterior - interior)	Exceptional	High (as original PJ design)	Exceptional	High (some changes in lights)	Exceptional (changes to be reversed)
5. ARCHIVAL drawings and files	Exceptional value of original drawings by Jeanneretand Mathur's office. (Especially since majority of original collection is located at CCA, Montreal)			Exceptional	Exceptional record (need to be conserved on priority)

5.SURVEYS AND ASSESSMENT

5.1 History of Repairs, Additions and Alterations

The Architect and Engineer's Office have maintained records for minor repairs, upgradation of services and routine maintenance. However, given that the structure is now 54 years old, not all records are readily available and some minor repairs were undertaken without detailed written communication as part of general upkeep and maintenance. Visitors have regularly photographed the building and on specific occasions, so a wide range of photographic evidence that documents small changes in the building can be found. Furthermore, oral descriptions of the Gandhi Bhawan have helped in piecing together a cohesive picture of the changes to the structure.

Year	Addition/ Modification	Reasons/ Discussion
1970's	Roofing layer modified	The roof slab was covered in aluminium foil/ sheeting that was deemed too obtrusive visually, so the roof finish was changed and the roof slab was painted white. (Source: Interview with Mr. Joga Singh, a member of the original team involved in construction of Gandhi Bhawan)
1970-71	Planting in front of Gandhi Bhawan	39 Royal Palm trees planted in avenues in front of Gandhi Bhawan and along the road leading up to the Gandhi Bhawan. Planting exercises were also undertaken 1980-81 and 1984-85 according to the records with the Horticulture Department. (Source: p.49. Records of the Horticulture Department, Panjab University- Planting Record)
1984-85	Expansion of Gandhi Bhawan- Addition of New Block discussed	Mr. S.L. Malhotra, Chairman of the School of Gandhian Studies since the Gandhi Bhawan spaces were proving to be insufficient to hold classes and simultaneously run the administration, initiated the discussion. However funding for the expansion needed to be approved with the permission of the Vice Chancellor of Panjab University and released by the University Grants Commission. An estimate of INR 4,24,000 was submitted by Mr. Malhotra to the UGC Grants Commission as well. (Source: Selected Correspondence between Chairman of School of Gandhian Studies, Mr. S.L. Malhotra and the Finance and Development Officer, Panjab University dating between 1983-1985)
1985-86	Repairs to the Roof	Interviews with the original team reveal that the roof form has faced several issues since the construction phase. In 1985-86, waterproofing and repairs to the roof

		were discussed. It is unclear whether these repairs were undertaken and to what extent these were needed. (Source: Interviews with Mr. Joga Singh and Mr. P.C. Markanda who were in the construction team for Gandhi Bhawan and other neighbouring buildings on campus)
1988	Electrical Installations added to the building	Lighting within the Gandhi Bhawan was deemed insufficient and the wiring had become out-dated. An estimate of approximately INR 26,500 was submitted to the Director of the School of Gandhian Studies by the Executive Engineer's Office, Panjab University following some discussions on the needs of the structure. (Source: Records from the Executive Engineer's Office and from the School of Gandhian Studies records dating between 23rd- 25th June, 1988)
	Addition of a Ramp, minor additions	Communication between the Engineer's Office and the Chairperson, School of Gandhian Studies indicates some discussion was underway for minor additions and modifications to the Gandhi Bhawan amounting to an estimate of INR 400 and the addition of a ramp for which an estimate of INR 10,000 was prepared. (Source: Records from the Executive Engineer's Office and School of Gandhian Studies dating to 3rd June, 1988)
1992	Approval of New Block Construction and Expansion of the School of Gandhian Studies. Funds sanctioned by the University Grants Commission	An Accidental fire in Gandhi Bhawan on 14thJanuary, 1992 was recorded in a letter dating to 21stJanuary 1992 leading to urgent discussion on the construction of the new block. Funds had already been released by the University Grants Commission of INR 4,00,000/- and the Director of the School of Gandhian Studies urged that works be undertaken by the Executive Engineer's Department with urgency. (Source: Letter dating 14th January, 1992 from Mr. R.L. Malhotra to the Dean, University Instruction, Panjab University)
1998	Addition of a ramp to the main building discussed	The size and material of the ramp is not clear, but the approach towards Gandhi Bhawan possibly needed upgradation leading to discussions on the addition of a ramp.
2003-2005	Soft board panelling replaced in committee room,	The soft board panelling in the committee room was requested for replacement in a series of communications from November 2003. The communication is currently incomplete so it is unclear when the soft-board panelling was first installed and when exactly it was removed.

	Discussion on addition of barricades on front porch	The parking of vehicles on the front porch was damaging the sand stone paving, which led to the discussion on addition of barricades. Currently, traffic barricades are used for this purpose. (Source: Communication between Architect's and Engineer's Offices, Panjab University, dating to 6th January, 2004)
2007	Grit panelling repairs discussed	Some of the cladding panels had begun to show signs of distress and movement so patch repairs and replacement panels were tested on site. No major repairs were undertaken, however. (Letters dating between 6th June- 16th October, 2007 between issued by the Executive Engineer's Office)
2007-08	Renovation of toilets discussed	The flooring of the toilets was showing signs of distress, reportedly because of differential settlement. Tiling was offered as a replacement along with upgradation of plumbing and WCs. (Letters dating between 6th June- 16th October, 2007 between issued by the Executive Engineer's Office)
2010-2011	Large scale repairs to the building and to the site discussed	A series of repair interventions and site upgradation proposals were discussed in a meeting convened by the Panjab University Construction Office and attended by several stakeholders including the Vice Chancellor and the Principle of Chandigarh School of Architecture. Some of the changes discussed were: 1. Repairs to the pointing of the external cladding of Gandhi Bhawan 2. Washing of the external panels of Gandhi Bhawan and plastering with white cement plaster 3. Air-conditioning of the entire building with split air conditioning units 4. Electrical upgradations and concealing exposed wiring 5. Dramatic lighting of the exteriors proposed 6. Changing the grass, bushes and addition of rocks in the surrounding landscape 7. Water-proofing of the roof in an appropriate finish 8. Change of upholstery to the chairs in the auditorium 9. Existing floors of the toilets to cleaned and scrubbed and repaired 10. Repairs to the sand-stone flooring 11. Acoustical treatments to the auditorium 12. Removal of fluorescent lighting on the exterior façade

		13. Lightning conductor to be replaced/ repaired 14. Cast RCC slab in pool and check leakage and relay the topping (Source: Minutes of Meeting convened on 3rd March, 2010 circulated by the Panjab University Construction Office on 25th March, 2010) It appears many of the items discussed in the meeting were undertaken on site as can be observed in contemporary images of the Gandhi Bhawan and site observations. However, items like air-conditioning, acoustical treatment were not undertaken on site.
	Repairs to the sand stone flooring in the exterior platforms and addition of stainless steel railing	Many of the original sand stone slabs were damaged and therefore replaced in 2010-11.Pictorial references confirm this intervention. A steel railing was added to all 3 platforms.
2010-11	Replacement of the grit finish cladding panels	Further repairs and cleaning and surface treatment was discussed for the exterior panels. Some testing was undertaken but no large scale repairs to the cladding panels. Site observations confirm these smaller interventions marked in the Physical Assessment Drawings. Informal conversations with a local mason who has worked on the Gandhi Bhawan repairs confirm the same.
2010-11	Extensive Repairs to roof by Siklastic	The original roof had some water seepage. A bituminous membrane was installed over the concrete slab as a waterproofing solution. This solution did not provide the desired water tightness and water still seeped into the roofing. In 2011, the building underwent some renovations and during this time, the water penetration at roofing was addressed. A cold-applied moisture triggered polyurethane layer was applied to the roofing over the existing bituminous surface after a minimal cleaning and removal of weak, de-bonded bituminous membrane (Source: Siklastic Repairs Report)
2010-11	Re-upholstering and repairs to chairs in the auditorium	Chairs were re-upholstered using similar coloured fabric and minor repairs were made to the hardware and fixtures of some of the seats
2010-11	Addition of water cooler outside committee room	Water cooler added and piping run through the toilets for continuous supply of drinking water inside the Gandhi Bhawan
2010-11	Tube-lights added in the library and auditorium and	The exact dates for this intervention is unclear

	front of the building	
2010-11	Repairs to the pool	Water-proofing undertaken and concrete paving repaired around the pool

Some other modifications and repairs (exact dates are unconfirmed)

Year	Addition/ Modification	Reasons/ Discussion
	Changes to the drainage system from the roof	Repeated records of issues with the roof drainage describe seepage and water retention on the roof. Informal conversations with team members from the Engineer's office and other employees of the School of Gandhian Studies describe this as a recurring issue.
	Re-upholstering and repairs to the library and committee room furniture	The chairs in the committee room and library have been changed, replaced and re-upholstered in several stages during the past two decades. The exact records for when these changes were made have not yet been located. Most recently, in Aug 2016, original furniture of Gandhi Bhawan has been brought back from various PU departments and minor repairs such as recanting has been done.
	Addition of laminate on table in committee room and paneling in committee room	
	Glass panes of glazing replaced	The glass panes have been replaced at several points, possibly during annual maintenance activities and as part of ongoing repairs in the Gandhi Bhawan.
	Raising of staging area in auditorium	The level of the stage was raised and it was surfaced with black marble
	Replacement and addition of steel storage units in the library	
	Painting and polishing of interiors and doors and windows	Regular painting of the interiors and polishing of the doors and windows has been undertaken. The records for this practice are at present incomplete. Most recent painting work was undertaken for the Gandhi Jayanti Celebrations in September 2016. The original colour scheme is retained during periodic painting works

Figure 53Undated images (possibly from the 1990's) of the Gandhi Bhawan (Source: School of Gandhian Studies, Panjab University)

Figure 54View of Gandhi Bhawan in 2016, with railing installed

Figure 55View of the Committee Room in 1995

(Source: Byunguh Yu, http://cnu.daejeon.kr/awa/Asia-India/ENGLISH-WFB%20Asia-India-Chandigarh-Open%20Hand%20&%20Rock%20Garden.htm) Now same chairs have been restored and kept back in Aug 2016

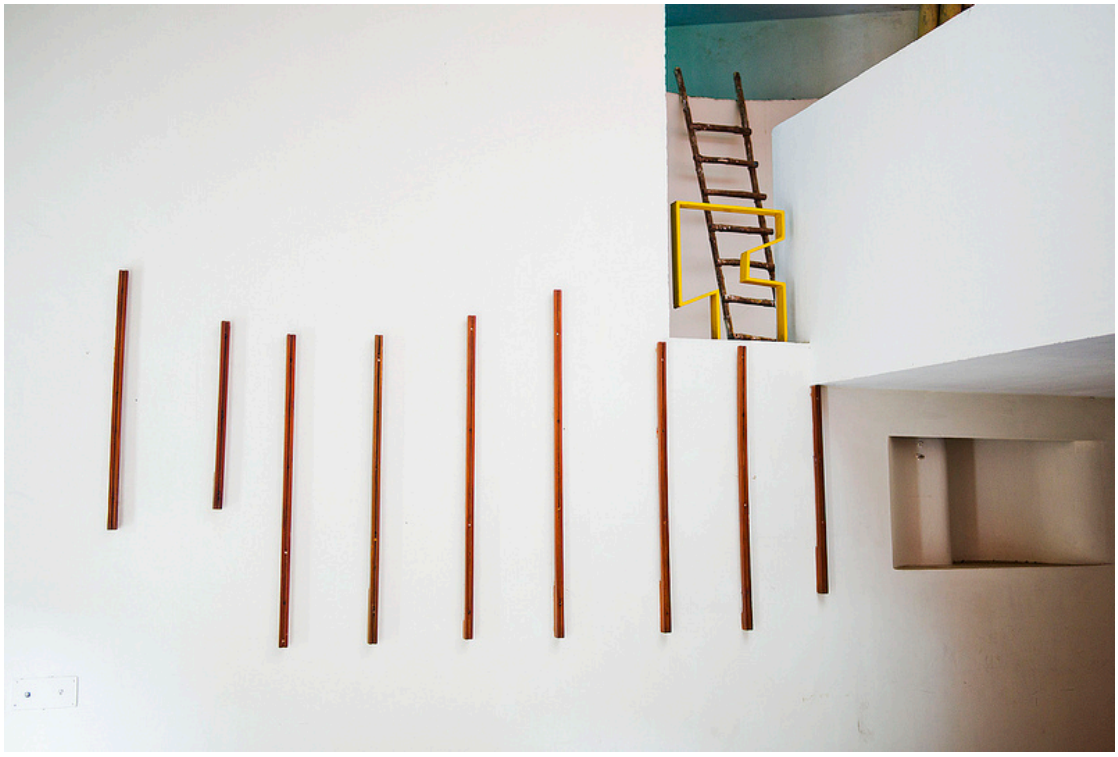


Figure 56A 1995 image suggests that re-painting of the surfaces in the Gandhi Bhawan was undertaken periodically

Figure 57View of the stage platform in 1995 showing raised level from the original
(Source: Byunguh Yu, http://cnu.daejeon.kr/awa/Asia-India/ENGLISH-WFB%20Asia-India-Chandigarh-Open%20Hand%20&%20Rock%20Garden.htm)

Figure 58In 1995, extensive seepage could be seen in the ceiling
(Source: Byunguh Yu, http://cnu.daejeon.kr/awa/Asia-India/ENGLISH-WFB%20Asia-India-Chandigarh-Open%20Hand%20&%20Rock%20Garden.htm)

Figure 59In 2010-2011 Sikalastic MTC Roofing were commissioned to make the roof form of the building water tight
(Source: Siklastic)

Figure 60Sand stone flooring being replaced, August 2013

(Source: http://flickrhivemind.net/blackmagic.cgi?id=9602092882&url=http%3A%2F%2Fflickrhivemind.net%2Fflickr_hvmnd.cgi%3Fmethod%3DGET%26sorting%3DInterestingness%26photo_type%3D250%26page%3D2%26noform%3Dt%26search_domain%3DTags%26photo_number%3D50%26sort%3DInte)

5.2 Landscape Condition Assessment

The assessment has been conducted under the following landscape components:

i. The man-made elements –
   a) The pool and its structure
   b) External building services, especially those that are connected to the pool – water-supply, drainage, over-flow, RW discharge system

ii. The natural elements –
   a) Trees
   b) Ground covers
   c) Water

The significance of the pool extends beyond its conceptual relevance to substantiate the abstraction of the idea of the building being a lotus with its reflection doubling the dimensions in the pool. The pool has other advantages linked to rainwater harvesting from roof and surroundings, water storage,

micro-climate amelioration, guides entry movement as access control by acting as a moat, eliminates ground disturbances around the building in accordance with its use and delineates the site boundary to retain the 'view-shed'. In essence, the pool layout strongly delineates both physical and visual extents of the site to limit chances of future encroachments into its apparent zone of vision.

A careful analysis of the volume of pool vis-a-vis the annual rain water harvesting potential of the roof-top and terraces of the building reveals the rationality of the pool size as the volume is only about 40% of the total RWH potential. This assessment, given in the following Table, takes into account the pool area as well since this is also part of the total catchment.

Table 3 Rationality analysis of the pool size

SL.	ITEM	QTTY	REMARKS
1	Gandhi Bhawan building covered area	340 Sq m	
2	Area of open to sky platforms (A1)	400 Sq m	
3	Roof area (A2)	490 Sq m	
4	Pool Area (A3)	4400 Sq m	This was after reducing the pool area by 770 Sq m.
5	Total catchment area (A"= A1+A2 +A3)	5290 Sq m	
6	Annual Average rainfall (R)	1048 mm	
7	Annual RWH Potential {A" x R x 0.95}	5266.72 Cu m	Run-off coeficient has been considered to be 0.95
8	Depth of water body (Av.)	0.5 M	Effective depth
9	Volume of water body	2200 Cu m - app. 40% of the Annual Rain Water Harvesting (RWH) potential.	This shows that the building and the pool setting have been designed as an integral water-wise solution to the hostile climatic condition.

The above analysis clearly indicates that rain water as the source of water supply may be enough, even after accounting for first flush and evaporation loss. However, the challenge would lie in maintaining the water quality in the pool through out the year.

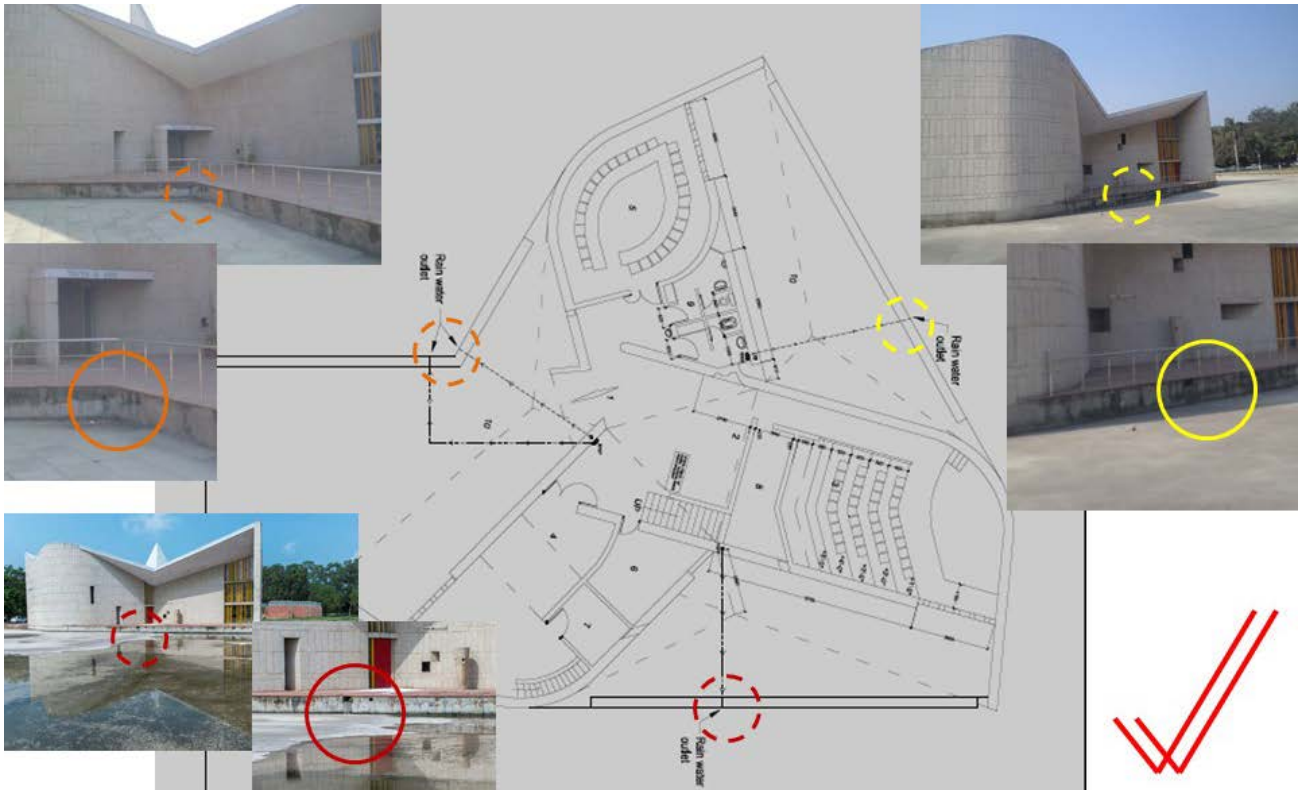


Figure 61Status of water inlets and outlets (refer condition assessment drawings

Figure 62Standing water in empty pool

The main issues related to the pool are drainage of the tank and water logging at places, water supply round the year as pool remains empty due to inadequate availability of water, water augmentation through rainwater harvesting needs to be developed. Furthermore, the empty pool area is vulnerable to littering and static water leading to risk of mosquito breeding.

Condition assessment of the vegetation of the core site and the surrounding areas indicate that the Royal Palms (Roystanearegia) around the south and west of the Gandhi Bhawan were taken up in the early 1970s. The choice appears rational as these palms would generate minimum leaf litter yet offer clear visibility of the building. Most of the other trees in the adjoining area are also evergreen and thus, with similar advantage. The over-all site landscape forms a bold layout with clear lines and large expanses of grass and water that are characteristically opposite yet naturally complementary.
The light sculpture designed as a repetitive element for all the three decks indicate the original intent of lighting being of indirect i.e. light source not visible, up lighting and with warm colour impact, as was with the existing lamp technology (GLS lamps).The walls, base and surround of the pool are all cast in cement concrete and have been repaired, re-surfaced, replaced and re-pointed in the past few years. Problems with water stagnation, evaporation etc. has led to the surface being degraded significantly over time. Waterproofing of the pool's base was initiated but it not clear how successful it has been. The toe wall of the pool is also in distress in some areas due to continuous seepage from the surrounding lawn areas. This is an issue exacerbated during monsoons.

Figure 63Surrounding vegetation assessment

Figure 64 Vegetation growth &Deterioration in Pool base and sides

Table 4 Component-wise physical, functional and aesthetic condition assessments

Sl.	Landscape components	Condition Type	Condition Assessment	Remarks
i.a)	Pool & its structure	Physical condition and Aesthetic condition- includes appearance and general presentation to users	i. Physical deterioration of joints ii. Signs of distress – cracks & seepage holes along outer toe wall iii. Undulations/ possible settlements in floor along outer edge iv. Missing/ loss of materials; bio-growth/ vegetation growth v. Cement deposits during repair works	Significant defects are evident and worn-out finishes require maintenance
i.b)	External building services: drainage	Functional condition - operational effectiveness	Main drainage pit is littered- requires regular cleaning	Services are functional but need attention
i.b)	External building services: water-supply	-do-	Water supply pipe at the south-east end is leaky	
i.b)	External building services: RW	-do-	Operational and functioning well	

	discharge			
i.b)	External building services: over-flow	-do-	Operational and functioning well	
ii.a)	Trees (Inventory as in the Table below)	Physical and Aesthetic condition-	Trees are in good condition	Maintenance and upkeep satisfactory
ii.b)	Ground covers	-do-	i. Absence of ground cover in the Royal Palm boulevard: Risk of soil erosion & air pollution ii. Texture of grass cover may also be improved	New plantation and upkeep of existing grass areas needed
ii.c)	Water	Physical, Aesthetic, Functional	Not operational- water is filled only twice a year. The pool remains empty for major part of the year.	Environmental issues exist

Table 5Inventory of Existing Trees: Site and Surroundings as provided by University Horticulture Dept.

SL.	BOTANICAL NAME	COMMON NAME	YEAR OF PLANTATION	QTTY.
	Along Boundary wall			
1	Eucalyptus spp. [E]	Eucalyptus	< 1970	107
2	Polyalthia longifolia var. pendula [E]	Weeping Ashoka	1980- '81	27
3	Schleichera trijuga [D]	Kusum, Ceylon Oak	1980- '81	19
	Between Museum of Fine Arts & Arts Block 2			
4	Pinus longifolia [E]	Pine	1987- '88	15
	Approach & front of auditorium			
5	Barringtonia acutangula [E]	Indian Oak, Hijal	1974- '75	21
6	Callistemon lanceolatus [E]	Bottle brush	1974- '75	9
7	Ficus infectoria [E]	Pilkhan	1984- '85	12
	Opposite of Gandhi Bhawan site			
8	Artocarpus heterophyllus [E]	Jackfruit	1985- '86	19
9	Cassia siamea [E]		1985- '86	5
10	Ficus infectoria [E]	Pilkhan	1984- '85	36
11	Polyalthia longifolia var. pendula [E]	Weeping Ashoka	1980- '81	77
	GANDHI BHAWAN CORE AREA			
12	Roystania regia	Royal Palm	1970- '71	40

5.3 Exteriors and Interiors

The Gandhi Bhawan building has remained largely intact despite some minor alterations in the past to keep up with the changing needs of the building. Some of the pertinent issues have been described in this section. A detailed set of condition assessment drawings as well as a visual glossary have been compiled as part of the documentation and analysis process.

5.3.1 EXTERIOR-Form and Structure

The structural system composed of columns and beams infilled with brick walls is in good condition. No major structural issues have been noted. The base of the building, which is located in a shallow pool of water, is showing signs of deterioration. The base seems to have many layers of cement plastering carried out in the past. This cement plaster or the finish layer covering the base is saturated with water and appears to be coming off. Black staining with bio-growth is present on the surface exposed to the water.

A thorough assessment shows that the roof is overall in a good condition. However, during the recent rainfall in June-July, 2016 some seepage was observed at the ceiling of lobby area. This is evident in the water stains at a number of locations at the ceiling and could be due to pooling of water at the terrace. The past repairs appear to be failing at a few locations. The previous campaigns are documented in the history of the repairs.

Figure 65Failing water proofing on the terrace and water stains in interiors

CLADDING PANELS (COMPOSITE)

The panels clad over the building envelope show signs of distress. The major issues are described below.

Detachment of panels (or dislodged)

A number of exterior cladding panels are dislodged or displaced. This can largely be observed at Elevation 2 with around 9-10 detached panels mainly at lower levels. About five are present on Elevation 1 at upper level around III-IV and 7 on Elevation 3. This could be possibly due to loss of cohesion of panel with the substrate (concrete/brick) where the mortar has deteriorated. It could also be due to a broken or a rusted clamp. The survey performed by IIT also aligns with the visual and sounding survey findings.

Structural cracks

Many hairline cracks are seen on the panels surface that are not severe, but the presence of structural cracks is noted on all elevations, which is critical. About 66structural cracks were recorded that have resulted from separation of one part of the panel from another, more than 4 mm wide. On Elevation 1, cracks are present on X-XII end; on Elevation 2 mainly at X-XII on lower level; and Elevation 3, has the maximum cracked panels present at I-IV and X-XII. Cracks have occurred because the re-bars used in panels have been exposed to water and air and have begun to rust. Rusting metal is exerting pressure causing the panel surface to crack. This is a serious condition and is potentially harmful to the integrity of panels (threat to life safety). Structural experts from IIT also evaluated the potential causes and impacts of these types of cracks.

Loss of aggregate

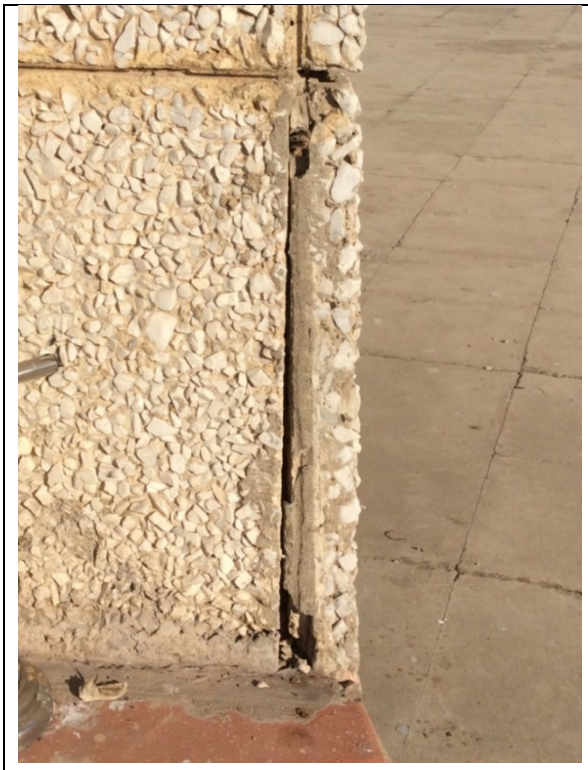
The surface of most of the panels is intact but a few show signs of surface deterioration. This is essentially the loss of aggregate from the panel surface, and in such cases, the substrate is visible. This could be due to mechanical damage caused by some external factors. Another cause could be the rusting of the rebar below the finished surface. The rusted rebars also exert pressure causing the surface to crack and erode. Loss of aggregate from panels is present uniformly on all elevations. Only at a few locations, the loss of aggregate is present exposing the rebars and in others only the surface aggregate is missing.

Exposed Rebars

Rebars that form the framework for the panels are exposed at some locations. Their exposure varies from small to large areas. This mainly occurs where the aggregate is lost from the surface of the panels exposing the rebars. This condition occurs at a very few location but is very detrimental to the panel. On Elevation 1, it occurs between I-III and V-VIII at upper levels, on Elevation2, it is present between III-IV at upper levels and I-III at lower levels and Elevation 3 has some around II along with few other locations.

Open Joints

The joints between panels are filled with mortar to make them watertight. Most of the mortar is deteriorated and in missing in several locations causing the joints to be open. This condition observed on at least 50% area of all three elevations. Historical records indicate that the opening of joints has been a concern for the Architecture and Engineering Department in the past as well.



Dislodged panels

Loss of material and exposed rebars

Cracks in the finish layer

Inappropriate repairs

Inappropriate Previous Repairs

These include interventions undertaken in the past to repair or modify that have altered original character. Repaired areas in form of patches from previous repairs or maintenance are visible on the panels. The repaired areas appear different in terms of colour and size of the aggregate and sometimes even the colour of the aggregate. Some panels have been replaced or the finished areas have been completely redone in the past (records are yet unconfirmed). These also appear different in terms of colour and size of aggregate and colour of the cement. On elevation 1, these repairs can be noted along lower middle section, from VIII-IX; on elevation 2, there are present on IV at upper most level where panels are completely patched, elevation 3 a few areas around I, IV-VI and large areas around X-XII. The base of the building on all three elevations has been repaired by patching with cement plaster Areas along openings have also been repaired on all elevations.

Displaced Panels

Some panels either appear to be out of plumb, slightly ahead or recessed from the plane of the main façade. A few of these have been highlighted and mapped during the conditions survey. These panels were surveyed by sounding and do not appear to be loose but are simply out of plumb. A further investigation could be carried out to understand the cause of movement.

Termites and Insects

Presence of termite is observed on the exterior of the buildings at the base of the panel. It is not alarming but needs to be addressed. One location is near on V-VI Elevation 1.

Vegetation on panels

Growth of small vegetation was observed near at the joints of panels. These are isolated locations mainly near the base of the building. Presence of vegetation is potentially harmful for the building. These plants tend to go deep into the joints and start to cause failure of the building materials. The vegetation growth has been addressed, however regular maintenance is needed.

Deposit and staining

Accumulation of extrinsic material like paint & cement splashes, residues from repairs are present on all elevations especially the upper most level. All elevations have accumulated of dirt and are soiled due to action of water & pollution. Furthermore, there is a distinct pattern of fading of the surface due to the partial shading of the exterior by the roof form.

FLOORING

The original sandstone flooring has been replaced with the present one. Even though it has been replaced recently, it is in a poor condition. A number of joints are open, some stones are cracked, damaged and some are loose. The current sand stone flooring is machine cut and dressed, whereas earlier it was hand dressed sand stone. It is unclear if the flooring pattern has been maintained exactly, though notionally the pattern remains the same

DOORS AND WINDOWS

The wood doors and its hardware, even though in a fair condition lacks upkeep and maintenance. On the exterior, almost all doors are in a deteriorated state due to water penetration and exposure to sun and water. They have expanded due to water ingress; get jammed frequently affecting the

Figure 66 Damaged Glass Panes of Skylight & Damaged Concrete

operability. Windows are also in a fair state. The putty has deteriorated at all widows causing the glass panes to become loose. Some glass panes are missing and some are cracked. Most of the glass is not original and has been replaced at some point during the life of the buildings. Slight damage to concrete around doors and windows is noted. The skylight has a missing glass pane, which is causing the water to come inside the building. Some gaps have also begun to appear between the frames and the masonry that could potentially lead to the doors distorting.

5.3.2 Interiors, Furniture and Artwork

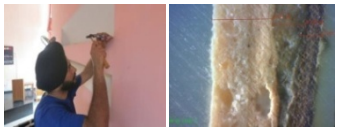
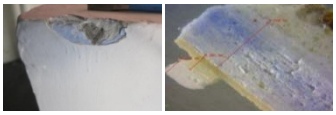
The interiors are in a fairly condition of upkeep and maintenance. The walls and roof are largely in good condition. No major issues have been noticed except slight seepage during rains at the ceiling, cracks in terrazzo and issues with doors and windows.

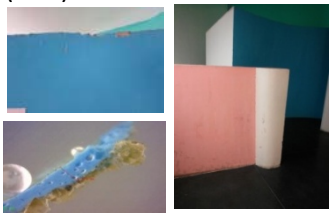
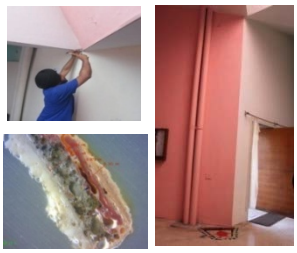
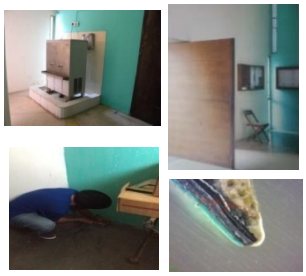
WALLS AND CEILINGS (PLASTERED)

The interior plastered walls are in a fair condition with no major visible structural issues. Areas with plaster defects that include unevenness due to water ingress are noted. Some surface cracks are also observed on the plastered walls. A major area of concern is the water pipes coming down from the roof into the interiors for water disposal. The areas around these pipes have been repaired in the past and still show some signs of water ingress. Repeated repairs to the plaster and repainting have made the overall surface uneven as well.

Figure 67 Rain water Pipe in entrance lobby & ceiling area of committee room

Table 6 Recommendations for wall paint colours based on archival evidence and paint analysis

Room Location	Paint Sample Analysis	Recommendation
Director's Office (GF6), Library (GF4), Auditorium (GF3)		
Interior 	• Two consecutive layers of yellow paint can be seen on both the magnifications. • Evidence of ground layer is not clear • A thin and uneven ground of yellow colour can be observed in the sample analysis. The two layers of yellow paint are clear.	Yellow paint is evident on the interior and exterior of the large openings. Color pigmentation if required can be obtained with further research for re-painting of the walls.
Exterior 	• Fluorescence of yellow color is visible in this particular sample, same illumination of yellow paint is visible where red and yellow both colors are present. • On the external part of the sample luminescence can be seen. • Same tone and even thin layer of ground appears to be present.	
Auditorium(GF3)		
Interior Wall 	• An initial layer of dark colour appears directly onto the plaster. • Over it a ground layer for the even finish is visible. • Thereafter same dark colour paint layer is visible. • Over it a layer of pink chiffon colour is visible, which is the current colour of the wall.	As per sample analysis and archival image of the auditorium the dark grey color appears to be the original layer. It needs to be analyzed further in accordance with the cleaning trials and pigmentation for establishing original color of the paint on the wall.
Steps from Lobby to Mezzanine floor of Auditorium 	• A single white layer directly painted onto the plaster is visible. • No evidence of ground layer is visible in the sample.	
Back Wall Auditorium 	• White ground layer is quite evident in this sample in both the magnifications. • The main paint layer has some solid colour particles which is also very clear in the image. • Some deposits are also visible at one end suggesting uneven deposition on the surface.	White paint layer is evident and recommended for the back wall of Auditorium.

Room Location	Paint Sample Analysis	Recommendation
Mezzanine Auditorium (GF3) 	• No evidence of ground layer is visible in this sample in any magnification. • Only a single main paint layer is visible at both the magnification. • The visible layer has many air bubbles suggesting it could be lime wash.	Same color is established. Pigment analysis if required may be carried out at a later stage.
Skylight and Entrance Lobby (GF1) 	• A ground layer is evidently visible in the sample in both the magnifications. • Different shades of red colours are also visible in the sample. • These different shades do not refer to re-painting of the wall these look like more of a filling material than paint layer • The lighter colour is on the outer part and the base colour is darker.	Darker Shade of red is evident on the ground layer. It needs to be analyzed further in accordance with the cleaning trials and pigmentation for establishing original color of the paint on the wall.
Director's Office (GF6)& Committee Room Interior (GF5) 	• Four different shades of blue are visible in the sample. • The image shows even layered shades which suggest re-painting of the wall. • Though a thin and uneven ground of blue colour can be observed in 10x image but is not clear or distinguishable.	Dark blue color is evident on as the first paint layer and current paint color used are in different shade of blue. Cleaning trials and pigmentation of original color need to be established.
Lobby Area (GF9) and Mezzanine store 	• Three colour layers are visible in this sample on both the magnifications. • Though a thin and uneven ground of grey colour can be observed in 4x image but is not clear or distinguishable. • Initial paint layers are dark in color whereas the outer most layers are lighter in color.	Dark grey colour is evident in the paint sample analysis. Archival picture of Gandhi Bhawan Interior showing entry door and colour wall behind sourced from "Galerie Patrick Seguin, 2011, shows the same colour as present. Colour pigmentation if required can be obtained with further research for re-painting of the walls.

FLOORING AND WALLS (TERRAZZO)

Most of the flooring in the building is in a good condition except some cracks indicating distress. Terrazzo flooring has also found to be discoloured around the area in the bathroom has been patched up inappropriately and draws attention to the otherwise uniform floor. Some loss is

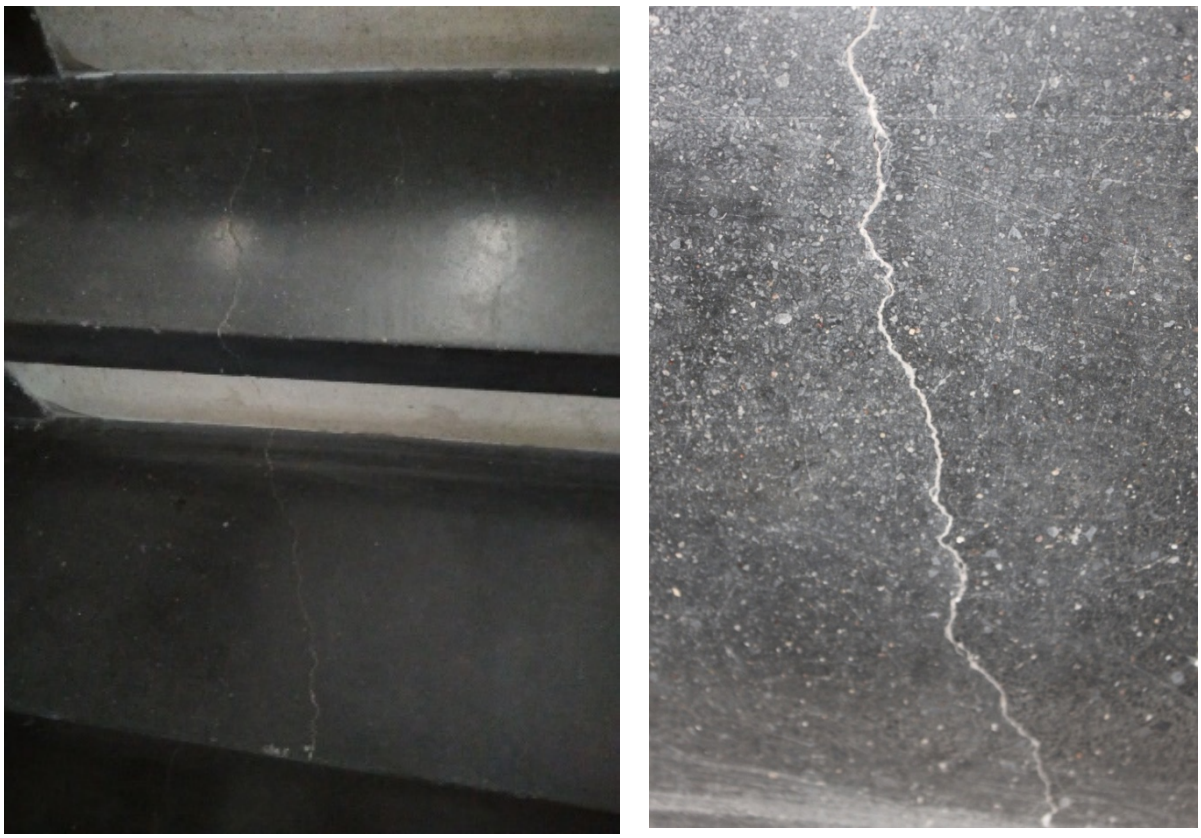


Figure 68 Cracks in black terrazzo flooring

observed around the joints even though the joints are in good condition. Black terrazzo in the auditorium has cracks at all levels of steps as well as at the sloping wall next to the steps (both sides). Some efflorescence is also observed in the auditorium. A number of repairs can be seen on black terrazzo surface. These walls are in a fair condition with minor cracks present on almost all surfaces. Some repairs have been done in the past to fill the cracks or any other areas with small loss.

Figure 69Patch repairs in floor outside the toilets

The original furniture of Gandhi Bhawan (except for the in-situ ones at auditorium seating and fixed table in seminar/conference room) had been scattered all over and moved to other departments with use and time. However, as part of the process of this conservation plan, PU took the initiative of relocating all the original furniture and replacing it back to the original spaces in Gandhi Bhawan.

Most of the original furniture was in fair state and caning has been undertaken to use it for future. The furniture was relocated in August 2016 and a detailed condition assessment along with record of each piece is available in the annexure.

A basic inventory showing no and types is shown in following pages and more drawings that are detailed are available in annexure.

Table 7 Inventory of Furniture in Gandhi Bhawan

S. No.	Furniture type & No.	Photograph
1.	Chair - Type 1 (20 in no.)	
2.	Chair - type 2 (33 in no.)	
3.	Table - Type 1 (Office desk) (2 in no.) G.S./1 G.S./8 1370mm X 780mm X 720mm	

4.	Table - type 2 (Librarian's Desk) G.S./6 1530mm X 920mm X 720mm	
5.	Table - Type 2 (Reading table) G.S./11 2455mm X 1220mm X 725mm	
6.	Table - Type 5 (Reading table lying in Mezzanine floor) G.S./13 1525mm X 920mm X 660mm	
7.	Table - Type 6 (Dismantled condition in Mezzanine floor) G.S./12	

8.	Sofa - (1No.Three seater) + (2No. Single seater)	

The mural at the entrance by artist Satish Gujral also requires some cleaning/ conservation work since the bottom side is splashed with some paint , overall mural shows signs of scratches and fading of colour in certain areas. The wall mural light fixture was originally installed in the floor and later on it was covered. The grainy textured surface of the mural attracts dust and grime, so the whole mural is covered in a fine layer of accumulated grime.

Figure 70Mural as seen from the entrance in 2016 shows deterioration and splash of paintwork at bottom

5.4 Use and Interpretation

The Gandhi Bhawan is currently used for side activities of the Gandhian Studies Institute such as seminars and conferences. The auditorium and conference room are actively used on occasions. However, the daily footfall to the library is limited and there are no modes of interpretation for the visitor to understand the significance of Gandhi Bhawan as an architectural and cultural marvel. Due to paucity of light, it is also operational for night events. The use is thus limited and needs to be explored for better intellectual access as well as universal access. Visitors come to see the architectural form and spaces of the Gandhi Bhawan as well, though this is a limited audience at present and there are no recorded numbers to confirm the regularity of visitors.

The library of Gandhi Bhawan is well equipped with books on the life and works of Mahatma Gandhi. The auditorium of the Bhawan is frequently utilised by the various Teaching Departments of the University as well as by the institutions situated at Chandigarh.

Figure 71Gandhi Bhawan seminar room in use

Figure 72Gandhi Bhawan auditorium being used in July 2016. It has serious issues of audio and lighting for presentations and heat and humidity issues while in use during summer

Calendar of Events

The schedule calendar for Gandhi Bhawan events is fixed for 30th January and 2nd October. Apart from this during the last month of the academic session I.e., April and May and in the starting of the session in the month of August and September it is occupied for the fair well and welcome ceremonies of different departments. Also the discussions, special lectures, talks of experts, and launch/release of books happens throughout year. However two events of debate and declamation.Krishan Grover and Bali events organised in Gandhi Bhawan once in a year. It is also used by Academic Staff for the opening and closing of semester courses.

Booking of Gandhi Bhawan Auditorium for Cultural Programmes throughout year				**For Library (Students and Researchers)**
Month	**No. of Booking for event per Year**			**7000+ Books**
	2014	**2015**	**2016**	**Approx. 60 -70 per month**
Jan 30 Jan (Martyr's day , Death anniversary of Mahatma Gandhi)	1	2	3	-
Fab	4	5	5	-
March	6	4	2	-
April	2	7	2	-
May	1	3	2	-
June	1	-	-	-
July	3	-	1	-
August	0	2	1	-
September	5	1	-	-
October 2nd October (Gandhi Jayanti)	1	1	1	-
November	2	-	-	-
December	-	-	-	-
Total events in a year	**26**	**25**	**17**	**Approx. – 10,000**

5.5 Lighting, Infrastructure and Services

The infrastructure and services at Gandhi Bhawan including rainwater outlets, piping systems, electrical works, and lighting require major changes considering the future use and functionality of the space. State of the art facilities such as speaker system/audio-visuals and air conditioning in the spaces requires serious consideration. Some of the later additions of lights and wall fans are major interventions that disturb the aesthetics of the interior spaces.

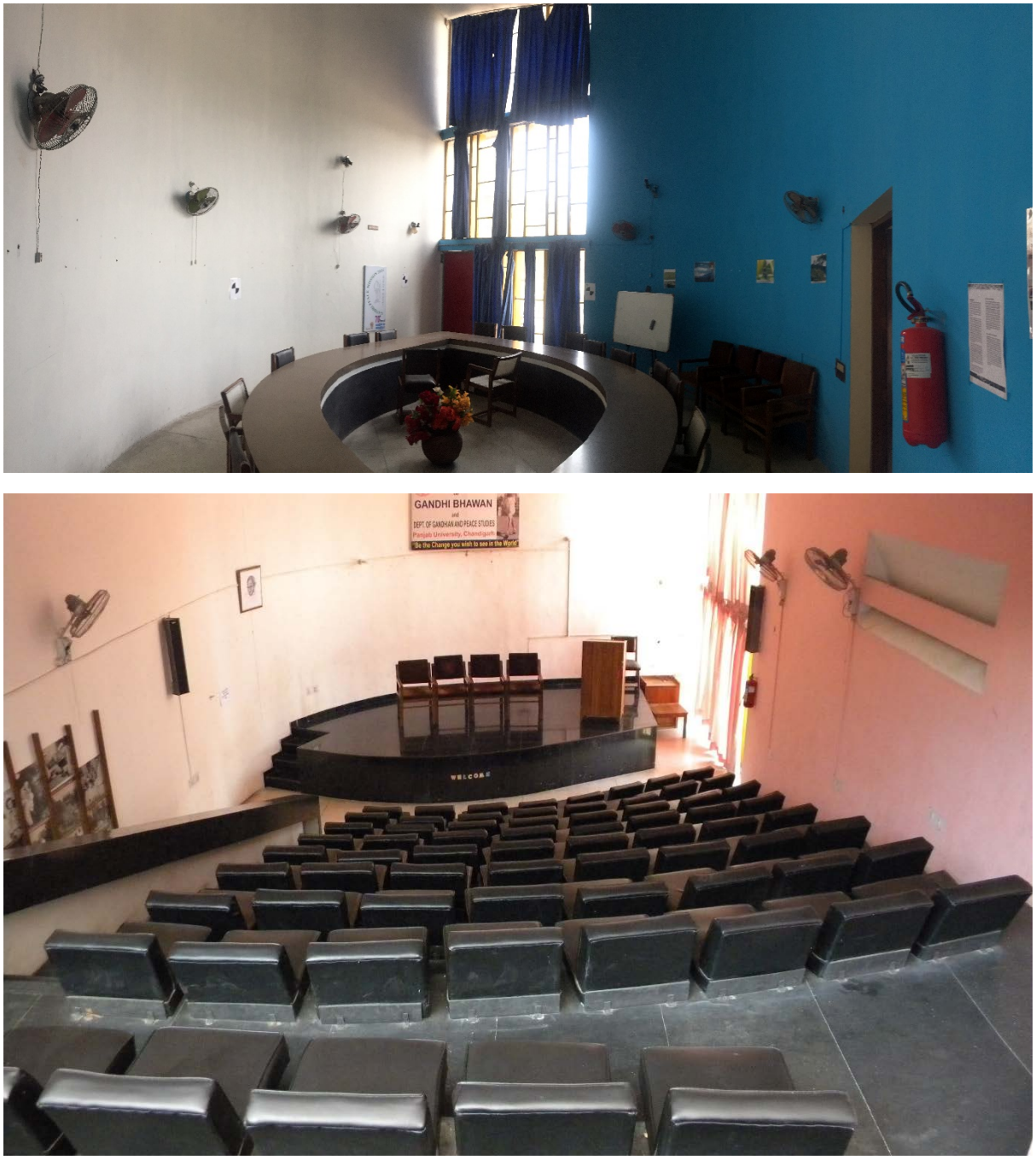


Figure 73Seminar Room and Gandhi Bhawan auditorium showing inappropriate fixtures of lights and fans that are disturbing the interior aesthetics

Figure 75 Water cooler at Gandhi Bhawan, which is an eyesore, needs to be replaced

Figure 74 Detail of original cove lighting incorporated with staircase railing

5.6 Risk Assessment

Gandhi Bhawan is vulnerable to the following Hazards:-

1. Fire: There have been some minor incidents of fire in Gandhi Bhawan and in the surrounding buildings in the campus. Many of these incidents are due to short circuit due to faulty electrical wiring. Dry grass in the surroundings may also cause fire during summer season. In addition, fire can result from arson caused by unrest in the campus.

   The library with its collection of many books and periodicals is certainly most vulnerable to fire especially in the absence of adequate fire extinguishers and no smoke detectors.

2. Earthquake: Chandigarh region falls in Seismic Zone 4, which is highly pone to earthquakes. Some of the concrete panels are on the façade of the building are distressed and in the event of earthquake, these can fall over causing risks to the lives of people and adversely affecting the building.

   Besides the electrical fixtures, wall hangings may also be vulnerable to earthquake. The heavy almirahs in the library are also not anchored and may topple during seismic movement.

3. Heavy Rainfall: Gandhi Bhawan may get affected by heavy rainfall causing localised flooding and affected the building due to seepage and dampness. Special attention is needed for the roof which has shown signs of distress due to prolonged collection of rainwater.

4. Theft and Vandalism: Especially during the periods of unrest, there is danger of theft and vandalism in the absence of adequate security measures in place. Additionally, movable artefacts such as the furniture of Gandhi Bhawan, especially the original pieces from Jeanneret's proposal can be at risk from potential theft.

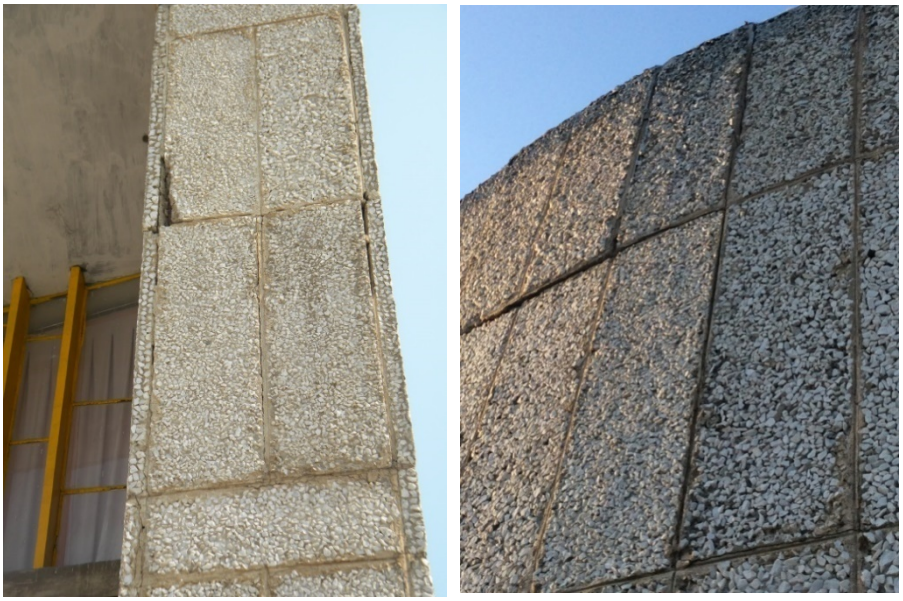


Figure 76 External panels that are showing signs of structural distress as identified by the various assessment techniques used for the Gandhi Bhawan pose a significant threat to both life and to the integrity of the panels themselves and need urgent attention

Detailed proposals as per this assessment are included in later sections. An emergency drill of staff was also conducted in July 2016 as part of making this plan.

6. POLICIES FOR GANDHI BHAWAN

6.1Policies to Retain Architect's Vision

Pierre Jeanneret's vision and conceptual approach to the form, symbolism and innovative construction technology of the Gandhi Bhawan shall underpin the overall approach towards its conservation, use and interpretation and any interventions made in the process. As stated in Section 3 of this report, Jeanneret's focus on the Gandhi Bhawan was on its curvilinear form, juxtaposed by the reflecting pool and, further set apart from its neighbouring structures through a contrasting use of exterior finishes and colour. Indeed, it is the sculptural form of the Gandhi Bhawan, intended to represent a lotus, that most contributes to its architectural value.

Furthermore, Jeanneret stressed on the 'richness of spirit, invention and imagination' as opposed to the 'richness of materials' (Jeanneret 1962). The use of inexpensive cladding material in Gandhi Bhawan as well as the simple interior finishes and flooring all respond to Jeanneret's highly creative approach to design, where modest material could achieve monumentality of expression through inventive usage. Thus, the overarching policies for Gandhi Bhawan will respond to these identified values and to the vision of its architect.

1. All conservation, use and interpretation proposals for the Gandhi Bhawan shall be mindful of its sculptural form and its symbolism as conceptualised by Pierre Jeanneret and his team. No additions or subtractions may be permitted in the structure or its setting that could diminish its formal composition in any manner.

2. Maintaining the authenticity of Gandhi Bhawan and all its elements should spearhead any physical intervention. Aspects of the building, interiors, landscape and fittings that positively contribute to its significance should be handled with caution. Wherever possible, stabilising and consolidation should be prioritised over reconstruction or replacement. Repairs and modifications that negatively affect the authenticity of the form, material, setting and spirit of the structure, or the original quality of its architecture should be removed.

3. While Jeanneret intended the Gandhi Bhawan as a memorial, he also envisioned it as an institution of learning and dissemination of Gandhian philosophies. This idea is enshrined within the simple, yet effective layout of the interior spaces, many of which continue to be in usage as they were intended. This authenticity of use and function should be maintained at the core of conservation planning for Gandhi Bhawan.

6.2 Overarching Conservation Policies

The policies for Gandhi Bhawan draw upon the existing Guidelines for conservation of twentieth century structures, such as the Madrid Document (Second Edition) of the ICOMOS-ISC20C and the Eindhoven-Seoul Statement 2014of the DoCoMoMo International, while referencing existing international charters and frameworks, including the Venice Charter, the Burra Charter and the Nara Document. The policies for Gandhi Bhawan must also address its status as a Protected Grade I Building under the Chandigarh Masterplan 2030. Furthermore, given the status of Chandigarh's Capitol Complex as a recently inscribed UNESCO World Heritage Site, the policies should take into account the increasing recognition and emphasis on artefacts of the Modernist Period in India. Finally and, most critically, the policies are informed by the significance and assessment presented in this document.

Conservation actions for the Gandhi Bhawan shall be based on rigorous documentation and research on various aspects of the building as well as a broader understanding of its geographical, historical and architectural context while also taking into account its present and future operational requirements. The overall policies for conservation, use and management for Gandhi Bhawan are:

4. Conservation of the Gandhi Bhawan will strive to convey the significance of the Modern Movement to a wider public audience as well as professionals and academics. It will endeavour to foster and disseminate the development of appropriate techniques for conserving twentieth century heritage within the South Asian context.

5. Any conservation activity or future intervention shall take into account the authenticity of the built fabric, furniture, fixtures and finishes and, shall strive to enhance and sustain its cultural significance. Interventions shall be undertaken after establishing clear limits for 'acceptable change', ensuring that these are sensitive to the values of the Gandhi Bhawan while responding to it being a vital, functioning part of the Panjab University Campus.

6. The conservation, use and management of Gandhi Bhawan in its landscape shall respect the original intention of its designers and patrons. However, it will strive to address environmental sustainability concerns and try to balance the two as far as possible.

7. The potential impact of any physical intervention, repair, addition or alteration on the significance of the Gandhi Bhawan should be described in detail and critically assessed before commencing work.

8. The nature of intervention in each area should respond to the level of significance of that element and the impact of the intervention on its significance.

9. Given the finite years of life of certain materials used in the construction of Gandhi Bhawan, it is advisable to generate samples based on laboratory results of the constituent materials and test these samples for compatibility with the original material in terms of strength, performance and appearance.

10. Any physical intervention to Gandhi Bhawan and its surrounding should be documented rigorously, with the documentation forming part of the archival material on the building. This documentation may serve as a benchmark for future interventions as well as resource material for professionals and academics. Conservation and interventions to the original fabric should be identifiable on close inspection or communicated through documentation and interpretation.

11. The value of significant layers of change and the patina of age should be respected and addressed mindfully.

6.3 Landscape

12. The Gandhi Bhawan pool is integral to the building. The two elements, the building and the pool, have a strong thematic and geometric interrelationship, enhancing the form and meaning of each other. The pool also serves multiple visual, functional and environmental purposes. This complementary nature of the building and its landscape will be retained and reinforced, while keeping in line with the larger goals of environmental sustainability.

13. There should be no intervention that visually obstructs or diminishes the setting of Gandhi Bhawan structure and, its relation with the pool (such as railing/other utility fixtures).

14. Appropriate repair works for the physically deteriorated masonry and concrete pavements along the pool periphery should be undertaken, along with transparent waterproofing layer on the pool surface to retain the material texture.

15. Water should be regularly maintained in the pool to ensure continued reflection of Gandhi Bhawan as envisaged in the original design. However, considering the drawbacks of stagnant water in the pool, sub-surface aerators may be proposed at suitable locations, so that surface agitation of the pool can be avoided to aid the reflection of the building in water

while at the same time, its cleanliness and transparency are also ensured. Alternatively, regular chlorination will be essential.

16. Operational effectiveness of external services, especially those serving the pool, should be ensured.

17. Grassing of areas with exposed raw earth in the pool surroundings should be undertaken. Additionally, general maintenance and upkeep of vegetated areas as well as the pool should be undertaken.

6.4 Exteriors

18. The exterior form of the structure should be retained in its original form. There should not be any new intervention that impacts the visual, structural or material integrity of Gandhi Bhawan's exterior.

19. The exterior wall panels should be retained in the original material. All past repairs or interventions should be studied and examined. Any future repairs/fixing should be based on a detailed analysis and material testing to ensure alignment with original material, texture and composition. Mock-ups for the precast panels are essential to determine the precise approaches for fixing and repairs of panels.

20. Flooring of red sandstone in the outside area is a later intervention. However, this flooring seems to be similar to the original sandstone flooring but the authenticity has been compromised to a certain extent, as the stones now used are machine-cut instead of the original hand-cut pieces. For any future repairs and replacement of this flooring, only hand cut sandstone matching the original size and colour should be used.

21. The roof form of Gandhi Bhawan is its key architectural feature and no tampering should be done in any manner to disturb this form. Past intervention of waterproofing has resulted in both a change of material and of colour on roof, though it has no impact on formal integrity and has helped in protection from water seepage. Hence, this intervention is considered to be within the ambit of 'acceptable change'. The roof needs to be constantly monitored for any future seepage. Since the surface of the roof has low authenticity, it can be re-surfaced if and when required to ensure protection of inner spaces from damage through seepage and dampness.

22. Doors and Windows of Gandhi Bhawan are retained as original and should be cleaned and monitored for any damages in future. The paint colour on these fenestrations should be

analysed for any future paintwork. The size/shape and design of these openings should never be compromised in any manner in any future intervention.

6.5 Interiors, Furniture and Artwork

23. The interior layout of spaces is extremely significant and needs to be retained. Any later changes that impact the original design need to be reversed to bring back the design to its original form.

24. The interior wall and ceiling finishes have undergone several changes during the life of the building. However, the paint analysis carried out for interior spaces and archival records/ photographs need to be studied for material specifications and colours to make informed decision on the final paint specifications.

25. The interior flooring is customised terrazzo from the 1960s with colours (white and black) specially selected for Gandhi Bhawan. This flooring is unique and very difficult to reproduce now. Hence, utmost care is required to protect and maintain the existing flooring. For places where it has been modified, such as the toilet area, mock-ups of matching terrazzo should be prepared. An informed decision should to be taken if any such areas need patch repairs or replication of the original flooring in any manner. A rigorous cycle of testing needs to be taken before any changes are made to the flooring.

26. The in-situ fixed furniture of the Gandhi Bhawan is an integral part of its architectural design and vocabulary and should be treated with the same sensitivity as the built fabric. Several interventions to the fixed furniture have been undertaken in the past leading to a loss of authenticity. Care needs to be taken that any future reproduction of such furniture, if required, should be done with proper research and documentation to match the original. Archival records and original drawings need to be referred for this purpose. The original colour schemes and fabric schemes should be reinstated after confirmation through research into archival documents and specifications.

27. The movable furniture that is currently located in the building is an assortment of original pieces designed exclusively for the Gandhi Bhawan as well as pieces that have been brought later because of changes in usage over time. Some of the original furniture has also been repaired, re-upholstered extensively and changed physically. The original furniture should be put back in each space as per the original plan. A detailed inventory of the original furniture,

along with condition assessment, should determine any future treatment. Mock-ups for repairing the original furniture should be mandatory along with material testing. Any new furniture that needs to be introduced should follow the form, scale, proportion, material and texture of the original furniture and should be recorded properly to distinguish from the original.

28. The mural near the entrance, conceived and executed by renowned Modernist artist Satish Gujral, represents the artistic spirit of the age and should be restored to its original state in with artist's inputs on appropriate processes of cleaning and then retained with the highest regard for its authenticity in terms of composition, textures and colour.

6.6 Use and Interpretation

29. The Gandhi Bhawan was designed with the specific intention of serving as an institution for disseminating Gandhian ideology and encouraging scholarship on the subject. It was also designed with the intent to serve as a memorial to Gandhi. The building continues to be in regular use, especially its library and lecture hall, even though some of its functions have been shifted to the newer block built in 1986. The spaces in the Gandhi Bhawan such as the Director's Room and the mezzanine floor in the library that are no longer used as intended should be assigned an appropriate re-use that responds to the building's significance. Continuity of use and function should be fostered and maintained as far as possible.

30. Regular maintenance of the building exteriors, interiors and the pool should include daily, monthly and annual activities, extending beyond standard cleaning practices to regular inspection of the spaces, surfaces, services, fittings and furniture. Continual and appropriate maintenance and periodic inspection is consistently the best conservation action for architectural heritage and reduces long-term repair costs.

31. Interpretation is an essential component of the overall conservation and management of Gandhi Bhawan and, thus, the documentation, research and significance of the building should be communicated to a broad audience at regular intervals through visits, interpretation signage, exhibitions and workshops. The Gandhi Bhawan has a broad user base and multiple stakeholders should be engaged continuously in its use and conservation through active dialogue.

6.7 Lighting, Infrastructure and Services

32. The sculptural elements and details that house lighting fixtures for Gandhi Bhawan in the exterior and interiors, for instance the cove lighting are unique elements of Modern architecture, especially the works of Le Corbusier and Pierre Jeanneret and of exceptional value. They need to be retained in their original form. Later interventions for lighting, which were not in the same spirit, need to be reversed. In addition, any future lighting proposals need to incorporate the original Modernist idiom of design without impacting the original lighting design strategy.

33. The infrastructure, electrical wiring, plumbing and drainage of the structure have undergone considerable wear and tear over years of sustained usage. It has, consequently, also undergone upgradation and repairs in the past. Sensitive upgradation and addition of services that serve to ensure the continued usage of the building should be considered as acceptable change. However, interventions should be discreet and not hamper the significance and aesthetics of exteriors and interiors in any manner.

34. Defunct services such as electrical wiring and fittings should be removed or replaced. Outdated fixtures should be replaced with sustainable alternatives where possible, provided they do not detract from the form or interiors.

35. For any new wiring requirement, the most feasible option may be to introduce these in the walls since these are the only surfaces where original material has already been changed and is of low authenticity. In no case, should the flooring be compromised for any wiring purposes since the terrazzo flooring is of much higher significance and authenticity. Any other additional visible conduits for wiring on walls or floors are also not feasible since they will impact the original aesthetics of the interior and, especially the clean, bold lines of walls and floors followed in Modern architecture.

36. Any future requirements for air conditioning, CCTV, projection systems and other advanced contemporary technologies required for improved functioning of Gandhi Bhawan need to be introduced sensitively to ensure that they do not impact any interior or exterior element of significance.

6.8 Archival Resources

37. There is a substantial set of records available in various offices of the Panjab University related to the project proposal, sources of funding, design, conception, construction, use and history of development of the Gandhi Bhawan, including original office records and drawings. All such original files, records, drawings, models, etc. need to be located and collected, carefully restored (if damaged), digitised, catalogued and documented properly. The original documents should be safeguarded from future weathering and secured from vandalism and misuse. All archival material, thus, also needs to be stored in appropriate storage situation such as compactors/ rooms with dehumidifiers and data-loggers, etc. as prescribed by material conservators.

38. Research on collections should be encouraged and disseminated. One of the specific objectives of conserving Gandhi Bhawan is to establish benchmarks and systems for the documentation, assessment and conservation of twentieth century architecture in India. To that end, the archival research, documentation, conservation processes, etc. should be made available as academic resource material.

6.9 Risk Management

39. The risks to the site and its management should be regularly assessed and actions taken to mitigate these risks. Currently, the exteriors of the structure pose some threat and structural conservation works should be undertaken to minimise risks. However, future conditions may evolve and it is imperative that a continuous system of monitoring is set up for Gandhi Bhawan.

40. The site should implement a security system to facilitate its functioning, especially with respect to its movable furniture and any collections that may be housed within the building. The security systems should integrate on-site personnel management with off-site monitoring to ensure protection of the site at all times.

41. The entire site should follow safety and fire-fighting norms. Disaster preparedness planning in response to fire, accidents and overcrowding is essential.

42. The site has identified emergency evacuation routes and protocols for identified disaster risks and these should be clearly communicated to visitors through signage and other communicative media.

43. Capacity building and training should form an integral part of risk management for Gandhi Bhawan (and other neighbouring structures on the Panjab University campus) and should be undertaken on a regular basis as a mandatory exercise.

44. Gandhi Bhawan may be at risk from slow agents of deterioration such as seepage from the roof, the degradation of its exterior cladding, the action of insects and pests. Consistent action is needed to prevent such actions from turning into an emergency.

45. Defunct services such as electrical wiring and plumbing and drainage lines should be removed or replaced as deemed necessary at the earliest to minimise risk to the building fabric.

46. Fire Audits, security audits and structural audits should be scheduled in the maintenance and upkeep roster of the building.

7. CONSERVATION MANAGEMENT OF GANDHI BHAWAN

7.1 Landscape Conservation Plan

The pool setting filled with water for reflection of Gandhi Bhawan along with other supportive aspects explained under condition assessment is the most essential requirement for landscape and overall conservation works in Gandhi Bhawan. This is also one of the most challenging proposals. Hence, it has been suggested that in the 1st phase complete waterproofing of pool be undertaken as per specifications (in drawings). Subsequently the water should be filled in the pool and monitoring be carried out for one year to observe seepage and water retention issues along with its impact on the microclimate. Any further works for implementation may only be carried out after completion of this monitoring. More detailed proposal for each are is listed below.

Table 8 Landscape Issues & Proposal

Sl.	Landscape component	Issue to be addressed	Proposal	Remarks
I	POOL			
1.	Pool base & wall structure	Physical deterioration etc.	Removal of vegetation/algae etc., sealing of joints, repair work on wall-base junction as per drawings	Grade correction is not being suggested due to high possibility of breakage of top layer.
2.	Water	i. Huge volume of water ii. water conservation & management/ iii. environmental sustainability	a. May use the medium-filtered (mentioned below) rain water as primary source. b. Keep it throughout the year. c. Seasonally augment it to compensate evaporation loss from municipal source.	First option is for filling and monitoring through mock-up (as per following plan) the water after complete waterproofing to observe a) evaporation issues b)seepage issues and c) microclimate changes. After required correction of seepage and monitoring for one year, the alternative option of reducing the depth for environmental sustenance may be reviewed.

3.	Water	Cleanliness of rain water – basic filtration	a. ONLINE filters can be installed to take of the clean water and remaining waste passed to the drainage line if there is suitable space and without disturbing the aesthetic of the building. (Approx. Cost 1.2 lacs) b. If no suitable space for ONLINE filters then strainer can be used with gravels arrangement provided regular cleaning should be done.	
4.	Water	Maintaining clean water round the year and prevent mosquito breeding	As detailed out in the proposal below	NOTE: We may reduce the number of aerators around the building to allow the water to remain still for better reflection.
5.	Water	Prevent Algae formation	Manual chlorination at a frequency of 2-3 times a week. Operation and Maintenance cost will be approx. Rs. 15000/- per month.	Algae is mostly formed in presence of nitrite but algae formation is noticed even with clean water in many swimming pools, hence disinfection is required.
6.	Power source for aerators	Energy conservation & environmental sustainability	Solar powered (preferably floating) aerator system as a concept in principle.	The exact locations, solar PV capacity, inverter specification, battery/battery less, pump capacity etc. have to be worked out by the vendor/ or specific consultant.
7.	Drainage pit	Prevent litter accumulation	Drainage pit may be covered with pre-cast concrete grating	
8.	Water inlets	Prevent leakage	Cleaning, painting, replacing the valves	
II	SOFT LANDSCAPE			
1.	Roadside stretch	Bare earth	Plantation of Selection 1 Grass	

2.	Other areas	To keep with original intent	Maintain as is - No additional plantation required	

7.1.1 Pool Mock-up Treatment Plan

A. Pre-testing (Test – 1)

All vegetation/ bio-growth to be removed from pool area. Pool to be filled up with adequate water to test water leakage. Brick work with clay mortar to be done for the bunding on one side to hold water for seven days. Fluctuation of level due to leakage through wall and floor to be monitored by erecting a vertical staff gauge and daily data to be recorded in a prescribed format. The level drop shall have to account for evaporation loss.

B. Civil Works with Water –proofing & Water test – 2

Repair work of plaster cracks in the side walls by redoing the plaster and sealing the joints between wall and pool floor, esp. where openings have appeared by cleaning followed by filling the joint with an appropriate sealing agent.

Water test for seven days to be carried out as previously done.

C. Civil Works with Water -proofing &Post – testing (Test – 3)

Leakage proofing and sealing the joints of floor panels by cleaning the joints followed by filling the joint with an appropriate sealant.

Water test to be carried out as mentioned in Part A & B.

7.1.2 Proposal for introducing Aeration system to maintain clean water

As mentioned above, the aeration system is proposed as follows:

i. Positioned at the tail end i.e. south-east length of the pool so that the reflection of Gandhi Bhawan remains unaffected.

ii. Powered with green energy- solar powered system is proposed as the source of energy for operating the aerators, to fulfil the overriding objectives of energy conservation and environmental sustainability.

The aerator system design is carried out following the above points and considering standard water quality as water will be collected from rain as well as municipal source, which is expected to be reasonably clean and treated. The effective water depth of pool being 500mm, the design of the system is such that maximum aerators nozzles can be accommodated with a certain range of pump selection. The water quality parameters at the pool such as BOD, COD & pH should be measured under laboratory for investigation and further suggestions, if required.

7.1.3 Methodology

The aerators / Tulip nozzles are fixed with UPVC pipeline network of mainline 90mm, 63mm & 50mm of Standard schedule 40 to feed the water from the solar submersible pump of 2 HP capacity. The pump receives power from the Solar Photovoltaic pannels with an option in the controller / driver having AC inputs in case of night operation or collapse of solar system. The maximum distance of controller to the pump should be maintained at 20 m to prevent the energy loss in wire. The plan below shows a schematic view of the system.

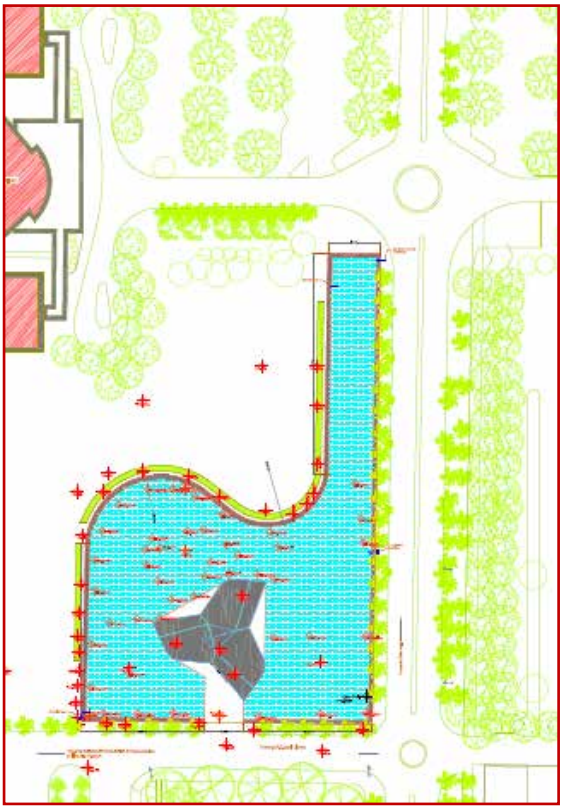


Figure 77 Key Plan of pool

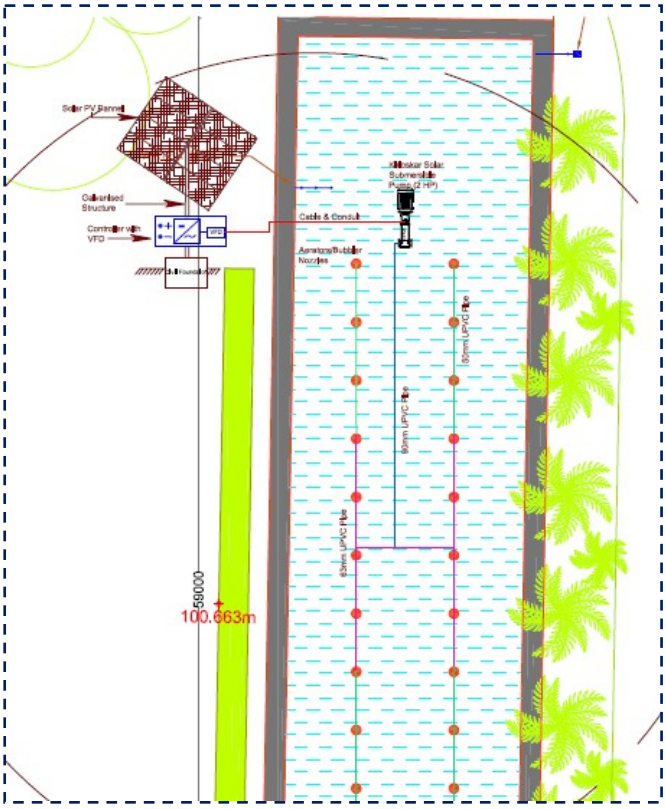


Figure 78Plan of the aeration system with solar powered

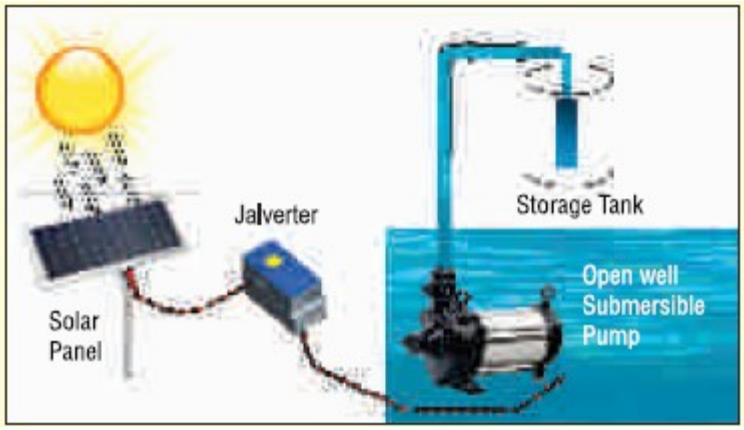


Figure 79Solar open well pumping : The working principle of the solar powered system

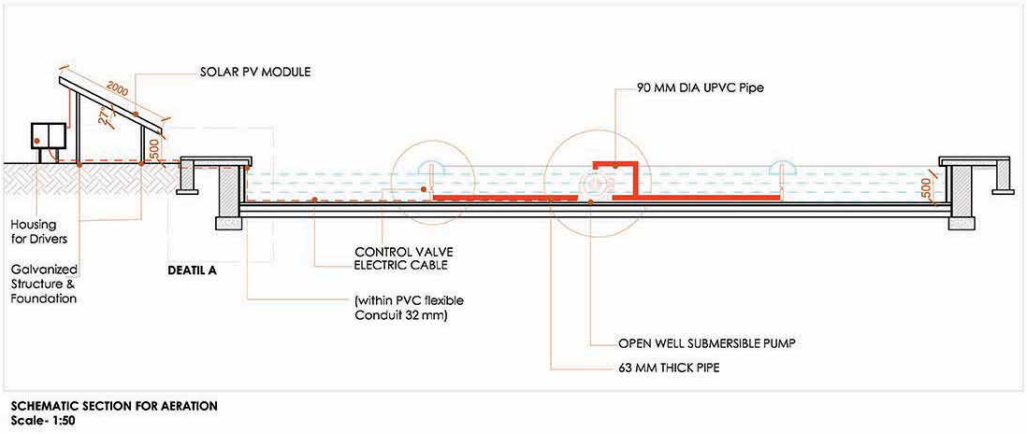
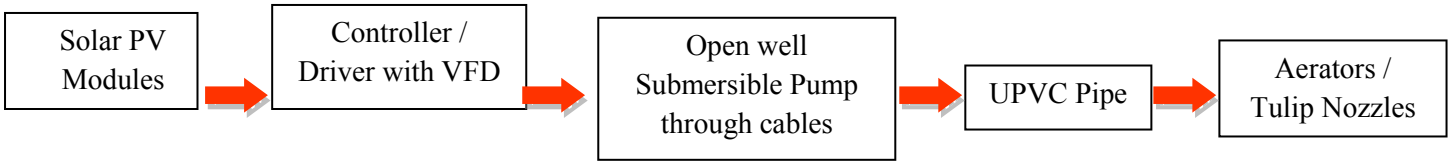


Figure 80 Schematic section of Pool aerator system



System algorithm as proposed

7.1.4 Components of the system

1. **Aerators (Tulip / Bell Shape Fountain Nozzles)**

Description: Water level independent Tulip Jet Nozzles with a moderately transparent Cup/Bell shape visibility with almost moderate splashing effect which offers Oxygen Enrichment with spray height 0.2m, Flux: 1 m3/hr, Pressure: (50 -80) KPa; MAKE: OASE/ PEM/ VARIO with 0.50" SS Ball Valve and all SS/UPVC fittings. Material of Construction: Stainless Steel, Inlet size: 0.50"

2. **Plumbing UPVC Pipes**

Description: UPVC Pipes with fittings for water distribution as per Standards and schedule 40 Make: Supreme/Ashirbad/Aqua Gold weather proof pipes and fittings for water distribution with all fittings and accessories like Bend, Tee, Coupler, etc

a) 90mm dia
b) 63mm dia
c) 50mm dia

3. **Submersible Pump set**

Description: Kirloskar MAKE Solar Pump (Model: SKOS 216M) Three Phase AC Openwell Submersible pump-sets run at 120/230 V completed coupled to 50 Hz Induction motor as standards, which can work with varying frequencies with varying sunlight intensity of capacity 2 HP along with SS Manifold, Non-Return Valve (GM threaded type), Ball Valve (SS Type) and By-pass assembly as per Delivery size of the pump.

Discharge: (195500 - 168300) LPD (Considering 5.5 kWh/m2/day of average Solar Insolation in India)
Head: (10 - 12) m
H.P. of Pump: 2 HP

4. **Cable & Conduits (from Controller to Pump)**

Description: Under water special type cable (4 sqmm x 3 core size copper flexible) MAKE: Havells/ Polycab / Equivalent and suitable PVC conduit of 32 mm size.

5. **Solar Photovoltaic Panel**

Description: Polycrystalline Solar PV Modules, 72 Cells, 300-315 Watt, 38 Vmpp with Junction Box as per IP 67, 3 bypass diodes to be connected in series facing towards SOUTH Direction.

Application Class Class A (Safety class II)

Superstrate High transmission low iron tempered glass, AR coated

Cells 72 polycrystalline solar cells, 4 bus bars

Cell Encapsulant EVA (Ethylene Vinyl Acetate)

Back Sheet Composite film

Anodized aluminium frame with twin wall profile

- should be tested by NABL accredited laboratory as specified by MNRE, GOI.

MAKE - Vikram Solar / Tata Solar Power / Equivalent (Tier-1 Company)

Power Warranty: 25 years (90% - 10 years, 80% - 25 years)

6. **Cable and Connectors (from Modules to Controller)**

Description: 1000 mm length cables (6sqmm x 1 core size copper UV protected (1.1 kV) cable from Modules to Jalverter), SOLARLOK PV4 connectors (MC4 compatible), MAKE: Havells/ Polycab / Equivalent

7. **Controller / Driver with VFD**

Description: Kirloskar MAKE Solar Power Conditioning Unit - JALVERTER™, with high efficiency automatic MPPT(Maximum Power Point Tracking), dual mode unit, variable frequency drive as per desired output voltage, sensor less dry run protection, under voltage and over voltage protection, easy operation & maintenance. Specifications as given below:
INPUT DC

Type Designation - JALVERTER-J1.5 (2.2 KW/3HP)

Max. I/P Power(KW) - 3.5

DC Voltage Range (Mpp) - 150-240V

Max. DC Voltage (Voc) - 400V

Max. Current - 23A

Also, Optional three phase AC inputs (with maximum 3% Voltage Drop in AC wire)

OUTPUT AC

Nominal AC O/P Power - 2.2KW

Nominal AC Current - 18A

Nominal O/P Voltage - 120V / 230V

O/P Frequency - Variable-1 TO 50Hz

Efficiency - 96%

- should be tested by NABL accredited laboratory as specified by MNRE, GOI.

8. **Structure and Foundation**

Description: Fixed HD Galvanised Structure (the structure design should be relevant to Industrial Standards with respect to wind direction) with optimum tilt position to hold the Modules in a single frame (approx. 80 kg weight of the structure) at Ground mount keeping 500mm from the free ground level. Consisting of foundation, C-sections, Z-sections, nuts/bolts (SS 304, anti theft bolt to hold pannels on frame), structure and civil construction materials (Grade M25) - cement, sand, stone, etc

9. **Miscellaneous Items**

Description: Misc. Items of UVPC / GI / SS / MS fittings like Tee, Bend, Coupler, N/B at Pump delivery, Strainer at Suction, Earthing Kit, Junction Box, GI Housing, etc

Cost Summary

The above nine items will cost a total of **Rs. 10.5 lacs**.

Apart from the initial fixed investment there also remain Operational and Maintenance Cost per month which is as follows:

a. If there is NO solar power the system can run with AC source (8 hours operation per day say / or even at night) for 2 HP (1.5kW) pump i.e 240 hr / month for Rs. 9.00 (1.5 x Rs. 6 /kWhr) **= Rs. 2,160.00 (Maximum)**

b. Mandatory Labour charges for cleaning the pannels with minimum 16 litres of fresh water two cycles / month i.e Rs. 1,000.00 /day = **Rs. 2,000.00**

7.2. Waterproofing Mockup for Pool

Area Enclosed for Mockup :500 sq metre(approx)

Duration: The mockup of waterproofing for pool base was carried out from February 2017 to April 2017.

Area Detail:

1. Area of mock pool base – 503 Sq m
2. 635 x 635 mm Tile area – 0.4 Sq m
3. no. of tiles in mock area = 503/ 0.4 = 1258 nos.
4. For each tile, no. of joints = 2
5. Joint length to be considered / tile = 635 x 2 = 1270 mm = 1.27 m
6. Total joint length = 1.27 x 1258 = 1597.66 m say 1600 m
7. Add wall and floor jt. on two sides only = (33.57 +15.03) = 48.6 m
8. Total jt. length = say 1650 m
9. Wall area – 48.6 X 0.5 = 24.3 SQM

Location: Longer end of the water body.

Materials used:

1. WALCRETE
2. HIGH BOND-40
3. QS-530
4. BNS - GROUT
5. Aluminum Nipples
6. BOND-FRS
7. Masking tape

Equipment used:

1. Machine cutter
2. Machine drill
3. Manual Pressure pump for Grouting

Procedure:

Seepage monitoring:

- Construction of a brick wall to enclose the 500sq metre area in the longer end of the pool and setting up a graduated staff gauge for water level measurement.
- Filling water in the confined area and monitoring for seepage of water (taking readings of level twice a day at gap of 9 hours).

Waterproofing Treatment

- Phase 1 - treatment of walls & floor-wall joint
- Phase 2 - Treatment of floor panel joints

Seepage Monitoring:


Figure 81Construction of new wall to enclose 500sq metre area& Setting up graduated staff gauge to measure water level


Figure 82Filling water up-to 20 inches and Monitoring for drop in water level

7.2.1 Waterproofing process:

Phase 1

- Plaster removing from walls with manual & mechanical means.
- Cutting the construction joints with electric cutter.
- Drilling the holes with hammer drill machines of 12 mm dia in all joints.
- Fixing the non- ferrous nipples at every 5 sqft(3ft spacing up & down) with cement mix with QS-530.
- Injecting non –shrink polymer compound (Mixing ratio 10 % High Bond 40, 10% BNS Grout and 4% QS 530 by weight of cement)
- The grout finds its way out from various cracks or sieves in the wall or the adjacent floor joints. So these outlets sealed with QS-530 & cement mix to carry on with the pressure grouting.
- Cutting the nipples and leveling properly with cement mixed with High Bond 40.
- Cleaning the surface thoroughly.
- Applying bonding coat of High Bond-40 mixed with cement, mixing ratio:1 part of High Bond-40, 1 part of water & 3 parts of cement in the joints.
- Filling of joints, final plastering and making gola with Bond FRS mixed with water.
- Curing the plaster for one day and filling the water for further monitoring of seepage.

Figure 83Removing plaster with mechanical means and Cutting construction joints with cutter

Figure 84Drilling 12" deep holes into the wall and Inserting nipples into the holes up-to 2"

Figure 853ft spacing of the nipples covering 5sqft area each and Sealing the joints with High Bond 40 & cement

Figure 86Mixing of compounds with cement and Pipe fixed onto the nipple for pressure grouting

Figure 87Pressure grouting being done with a manual pump and Grout coming out of sieves and spaces in the wall

Figure 88Grout coming out of joints in the floor while pressure grouting

Figure 89Coat of High Bond 40 mix with cement & water and Final plastering with Bond FRS

Figure 90Filling water after waterproofing treatment up-to 20 inches and monitoring for seepage

Phase 1 - With treatment of wall & floor-wall Joint only

Table 9Record of Water-Retention Capacity Of Pool

Date	Time	Gauge reading (Units - cm)	Change in Water level Recorded (Units - cm)	Remarks/ notes/ comments on elevation changes	Additional notes
23/2/17					Water was still being filled
	5.00pm	55 cm	0 cm		Monitoring started at 55cm
24/2/17	9.00am	47.5 cm	7.5 cm		
	5.00pm	45 cm	2.5 cm		
25/2/17	9.00am	40 cm	5 cm		
	5.00pm	36.88 cm	3.12 cm		
26/2/17	9.00pm	31.25 cm	5.63 cm		
	5.00pm	28.75 cm	2.5 cm		
27/2/17	9.00am	25 cm	3.75 cm		
	5.00pm	22.5 cm	2.5 cm		
28/2/17	9.00am	18.75 cm	3.75 cm		
	5.00pm	16.25 cm	2.5 cm		
1/3/17	9.00am	13.13 cm	3.12 cm		
	5.00pm	11.88 cm	1.33 cm		
2/3/17	9.00am	9.38 cm	2.5 cm		
	5.00pm	7.50 cm	1.88 cm		
3/3/17	9.00am	5.00 cm	2.5 cm		Water left only in the lowest portion where the scale was setup.
	5.00pm	4.38 cm	0.62 cm		Almost empty

Waterproofing process: Phase 1

- Cutting of floor panel joints with electric cutter.
- Drilling holes of 12mm dia & 3" deep at diagonal corners of each floor panel.
- Masking of joint edges with masking tape to get straight lines of floor joints.
- QS- 530 poured into the cut joints in small amounts and allowed to set for 1 hour.
- Mix of 1 part High bond-40, 2 parts water & cement is used to seal the 1' deep cut joints and allowed to set for a day.
- The masking tape is removed & we get clean and straight joint lines.
- Fixing the non- ferrous nipples 2" deep into the drilled holes with cement mix with QS-530.
- Injecting non –shrink polymer compound (Mixing ratio 10 % High Bond 40, 10% BNS Grout and 4% QS 530 by weight of cement)
- The grout finds its way out from various cracks or sieves in the floor & joints, So these outlets sealed with QS-530 & cement mix to carry on with the pressure grouting.
- Cutting the nipples and leveling properly with cement mixed with High Bond 40.
- Cleaning the surface thoroughly.
- Allowing the grout to set for two days and filling the pool with water to monitor for any further seepage.

Figure 91 Cutting of floor joints and drilling holes at corners


Figure 92Masking of joint edges with tape and QS- 530 poured into the cut joints


Figure 93Sealing of joints with High Bond 40 mix and Inserting & fixing nipples 2" deep into the holes.


Figure 94Pressure grouting with manual pressure pump and Grout coming out from the floor joints.

Figure 95Cleaning of surface and Filling of water upto 20" after 2 days of treatment

Figure 96Monitoring of water level after treatment and loss of water recorded for 2 weeks

Phase 2 - With treatment of wall, floor-wall Joint & floor.

Table 10Record of Water-Retention Capacity Of Pool

Date	Time	Gauge reading (Units - cm)	Change in Water level Recorded (Units - cm)	Remarks/ notes/ comments on elevation changes	Additional notes
30/3/17	9.00am	50.8 cm			Monitoring started
	5.00pm	50.5 cm			
31/3/17	9.00am	50.16 cm			
	5.00pm	49.53 cm			
1/4/17	9.00am	49.15 cm			
	5.00pm	48.75 cm			
2/4/17	9.00pm	48.55 cm			
	5.00pm	48.26 cm			
3/4/17	9.00am	48.00 cm			
	5.00pm	47.75 cm			
4/4/17	9.00am	46.99 cm			
	5.00pm	46.50 cm			
5/4/17	9.00am	46.35 cm			
	5.00pm	46.15 cm			
6/4/17	9.00am	45.90 cm			
	5.00pm	45.72 cm			
7/4/17	9.00am	-			Reading could not be taken because of curfew in PU
	5.00pm	-			Reading could not be taken because of curfew in PU

8/4/17	9.00am	-			Reading could not be taken because of curfew in PU
	5.00pm	-			Reading could not be taken because of curfew in PU
9/4/17	9.00am	-			Reading could not be taken because of curfew in PU
	5.00pm	-			Reading could not be taken because of curfew in PU
10/4/17	9.00am	43.81 cm			
	5.00pm	43.18 cm			

Conclusion: The mock-up was successfully accomplished and it was found that after the treatment of wall and floor joints there was no leakage. The plan is to carry out this treatment for rest of the area of pool.

7.3 Conservation of Exteriors and Interiors

Based on the various surveys and condition assessment of each element carried on site, the conservation plan determines the nature and composition of material and modes of intervention for long-term conservation of each. The assessment of its condition is supported by recommended treatment and prioritization based on the identified issues. Detailed drawings of each area are part of the conservation management plan while the primary points are summarized in Table B on next page. Conditions have been grouped based on severity and level of intervention and priorities for intervention have been identified on this basis as below:

- **P1: VERY HIGH**

  These include conditions, which require immediate attention, and if left unaddressed or uncorrected, could be a threat to life safety. In addition to the life threat these also include conditions which are could cause the material fabric to disintegrate and result in irreplaceable loss.

- **P2: HIGH**

  Conditions that could result in failure of materials and could become severe. These should be addressed after the urgent conditions have been taken care

- **P3: MEDIUM**

  Deteriorated conditions that don't need urgent intervention and can be planned for and appropriate time in the future. If left unaddressed it could lead to a water proofing issue.

- **P4: LOW**

  Conditions that have been addressed in the past but still require intervention either due to failure or due to aesthetic concerns

- **P5: AESTHETIC**

  A treatment necessary to remedy a condition that affects the appearance but not the integrity or performance of the material.

Based on the detailed assessment carried out in Section 5, the treatment for conservation of exterior and interior materials is recommended as below. In a number of cases, it is essential to prepare mock ups before undertaking any treatment to decide the final process. Mock ups for exterior panels have been initiated as part of this plan preparation and few more mock ups are proposed to be conducted before the finalization of this draft plan. The suggested treatments need to be read in conjunction with the drawings for each area/elevation/plan in the Part B of this report. Some sample drawings are also included in this section.

***Denotes where mock-ups required**

EXTERIOR- Form and Structure (including roof)

Termite control and Pest control to be carried out in exteriors and interiors at all places in the building..

CLADDING PANELS

General:

- Clean all surfaces of exterior gently with sponge and water to remove dust and soiling.
- Remove small vegetation from the joint s and rep-point the joints.
- Remove all exiting mortar from the joints around the panels. Clean the joints and then the joints should be re-pointed on all the facades around the panels. This should not be done on the entire building at one time but in small sections on different facades.
- Insect nests and termite control should be performed on the entire building especially, from behind the panels during repointing as the open joints could help access the back of the panels.

Following should be carried out as per conservation planning drawings and detailed specifications document:

- Provide pins to re-secure dislodged panels. Fill the holes with patching mortar. *
- Repair cracks by routing, cleaning and filling with grout/mortar. *
- For loss, provide a new patch after cleaning the area with patching mortar. *
- For inappropriate or failing previous repairs, provide new patches after cleaning the area. If the rebar is exposed, it should be cleaned and coated with a corrosion inhibitor.
- For exposed rebar, clean and coat the rebar then install a new patch

DOORS AND WINDOWS

General Notes

- Clean all surfaces with gentle detergent and water
- Clean paint spatter and other deposits from glass surfaces and surrounds
- Remove all deteriorated putty and install new putty
- Make all the hardware operable
- Monitor damaged concrete around doors and windows

Following should be carried out as per conservation planning drawings and detailed specifications document:

- Provide new glass pane where missing or damaged
- replace severely damaged door with similar
- Replace termite damaged sections
- Replace the damaged wood with new section
- provide new hardware where damaged or missing
- Remove inappropriate existing repair material and provide new

TERRAZZO FLOORS AND WALLS

General notes

- Clean and scrub all the terrazzo surfaces to be cleaned with mild detergent
- Termite control should be carried out
- Re-point the joints during polishing

Following should be carried out as per conservation planning drawings and detailed specifications document:

- Repair cracks by routing, cleaning and filling with grout when the floors are polished. *****
- Remove inappropriate existing repair material and provide new to match the existing*****
- Bulging and delaminated surface to be consolidated by injecting/pumping with pressure consolidants on the bulging surface *****

REDSANDSTONE FLOORING

General notes:

- Reinstall all joints

Following should be carried out as per conservation planning drawings and detailed specifications document:

- Replace damaged red sandstone
- Reinstall loose stones
- In long term when this newly laid flooring (from 2011) gets damaged and requires complete replacement then it should be reinstated as per original hand cut sandstone to match original pieces that have been retained by the Institute of Gandhian Studies

PLASTER WALLS

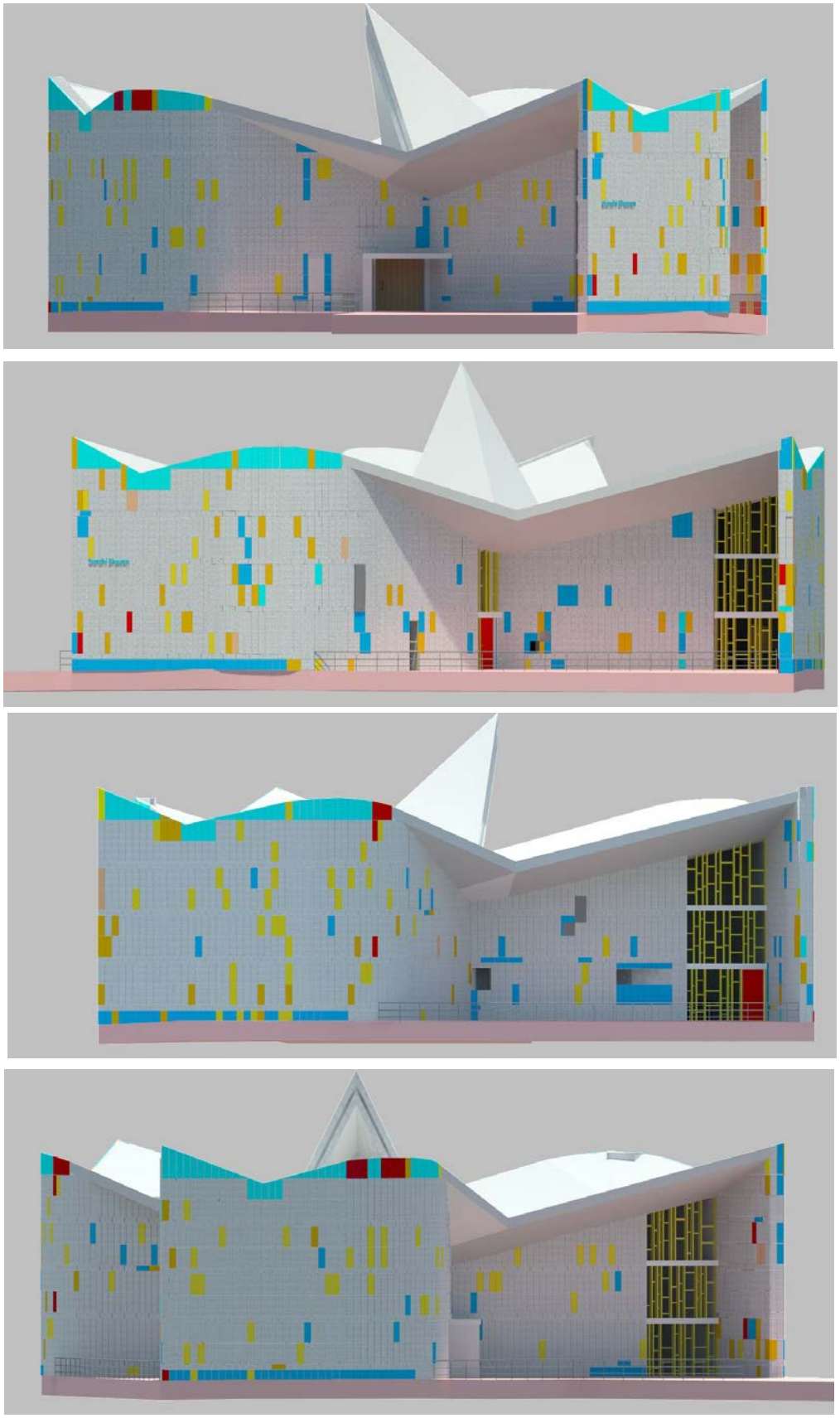
General notes

- Pest control to be carried out for all interior wall surfaces
- Electrical conduits maybe placed by chasing to be concealed instead of adding to un-sightly superimposed conduits on the wall. These should be documented rigorously to avoid repeated tampering into the surface.
- Extrinsic deposits to be removed during next painting and maintenance cycle
- All the plaster defects to be monitored.
- Cracks to be monitored

CLADDING PANEL : Concrete with cement aggregate finish			
CONDITIONS	TREATMENT	IMPACT	LOCATION
1. Dislodged Panel 2. Structural cracks 3. Exposed rebar (<25 %) 4. Loss (<25 %)	1. Re-secure panel 2. Clean, grout and fill cracks 3. Clean and prime the rebar 4. Patch the loss	P1	Elevation 1 Elevation 2 Elevation 3
1. Cracks 2. Loss (>20 %) 3. Exposed rebar (>20 %)	1. Clean, grout and fill 1. Clean and prime the rebar 2. Patch the loss	P2	Elevation 1 Elevation 2 Elevation 3
1. Open Joints	1. Clean and re-point the joints	P3	NA
1. Previous repair or intervention leading to surface damage.	1. Remove and repair with compatible material	P4	Elevation 1 Elevation 2 Elevation 3
Sun related staining Deposits Staining	To be cleaned	P5	NA
FLOORING: Red sandstone			
CONDITIONS	TREATMENT	IMPACT	LOCATION
Open joints	Clean and re-point the joints	P2	NA
ROOF: Concrete			
CONDITIONS	TREATMENT	IMPACT	LOCATION
Water stagnation	Clean and refinish with proper slopes	P3	NA
Cracks	Monitor	P4	NA
Deteriorated finished layer	Monitor	P4	NA
CEILING: Concrete with plaster finish			
CONDITIONS	TREATMENT	IMPACT	LOCATION
Water damage Cracks	To be monitored	P4	Elevation 1 Elevation 2 Elevation 3
DOORS & WINDOWS: WOOD **FINS: CONCRETE**			
CONDITIONS	TREATMENT	IMPACT	LOCATION
Severe water damage	Replace with similar material and finish	P2	D1, D2, D3
Operability and hardware	Clean and repair. Make operable	P2	D1, D2, D3
Damaged and missing putty	Clean and install new putty	P2	
Missing and damaged glass	Install new along with new putty	P2	D1, D2, D3
Damaged concrete at fins	To be monitored	P4	D1, D2, D3

FLOORING : **Terrazzo**			
CONDITIONS	TREATMENT	IMPACT	LOCATION
Cracks	1. Clean grout and fill the cracks 2. Refinish the floor	P3	GF1 GF2 GF3
Open joints	Clean and re-point	P3	
Previous repairs	Remove and reinstall new floor	P3	
Discolouration		P5	
WALL and CEILING: Brick with plaster finish			
CONDITIONS		IMPACT	LOCATION
Cracks	Clean and fill	P3	GF 1 GF 2 GF 3
Plaster damage			
WALLS: Brick with Terrazzo finish			
CONDITIONS		IMPACT	LOCATION
Water damage Cracks	To be monitored	P4	GF 1 GF 2 GF 3

Condition Assessment of External Cladding Panels on 3 D model



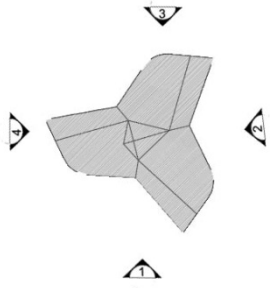


Figure 97 Condition assessment of External cladding panels of all four side Elevation ref. to above mentioned legend

Key Plan

7.4 Cladding panels Mock-ups

Construction of panels: The cladding panels at Gandhi Bhawan are installed with help of mortar at the back and brass clamps that connects panels together on each side. The panels are 40 mm thick, composed of two layers; first RCC base, 35 mm thick that supports the grit finish 5 mm thick, applied as the finishing layer set in white cement. As a result, the structure has a white textured surface. During the time of construction, panels of varying mixes of grit were tested on site. This top layer is also reinforced with metal bars.

Current conditions: The surface of most of the panels in intact but a few show signs of surface deterioration. This is essentially the loss of aggregate from the panel surface. In such cases, RCC substrate is visible. This could be caused due to mechanical damage. Another cause could be the rusting of the rebar below the finished surface. The rusted rebars also exert pressure causing the surface to erode. Loss of aggregate from panels is present uniformly on all elevations. Only at a few locations, the aggregate is lost with exposed rebars and in others only the aggregate is missing.

Mock-ups:

This visible damage in form of loss is suggested to be patched using similar materials. A number of mock ups were carried out in order to create a similar matching patching. A representative sample was collected from the building and was used to make similar patch repair samples.

1. The sample was cleaned of soiling before matching it to the new mock ups in order get as close a match as possible.
2. The materials used for the mock-ups include cement, sand and aggregate for the paste to set the white bigger aggregate that forms the finished surface of the cladding panel.
3. A variety of cements and sand combinations were tried to make the paste layer. Grey and white cements were mixed in different proportions and finally lighter Shriram Cement was agreed upon to be use.
4. Sands from Chandigarh were used to create the mock-ups along with these cement varieties. Ghaggar river sand was found most appropriate. Ghaggar sand was also mentioned in the original specifications of the building for another use and since no specifications were found for the panels it was decided to follow the general materials that were specified based on CSR specification in the original archival file.
5. The white chunky aggregate that forms a major part of the finished layer was the achieved by experimenting with many times with different varieties of white stones. These were broken down manually in different sizes. Marble was tried and found to contain large

amount of quartz. Other varieties were stones were also tried but finally the river stone from Chandigarh turned out to be closest match.

6. River stone was segregated to match the original grit and ration of grit carried out for matching the density of exposed grit.
7. Method of mixing used was premixed with mortar or pasting the grit on a layer of wet cement mortar mix. Also reverse type was triedi.e. laying grit on base and putting mortar on top as both are standard methods used as also found in interviews with Joga Singh and during discussions at the Getty Foundation C20 workshop in London.

Figure 98 Stones for aggregate

Figure 99Cross section of aggregates

Figure 100 Bluish aggregate. Rejected

Figure 101White aggregate with yellow tint .Accepted

8. The samples were created in small moulds of 6” X 6” (150 mm X 150 mm)

All the samples are now left to cure and dry out before making the final decision of the most appropriate match. The team is still working on sand colour and types and more mock ups will be carried out before finalising the conservation plan.

7.4.1. Mock-Up Sample Details

Aggregate sizes:

1. (Size - 1) : 1.25cm

2. (Size - 2) : 1.50cm

3. (Size - 3) : 2.00cm

4. (Size - 4) : 2.25cm

5. (Size - 5) : 2.75cm

6. (Size - 6) : 3.00cm

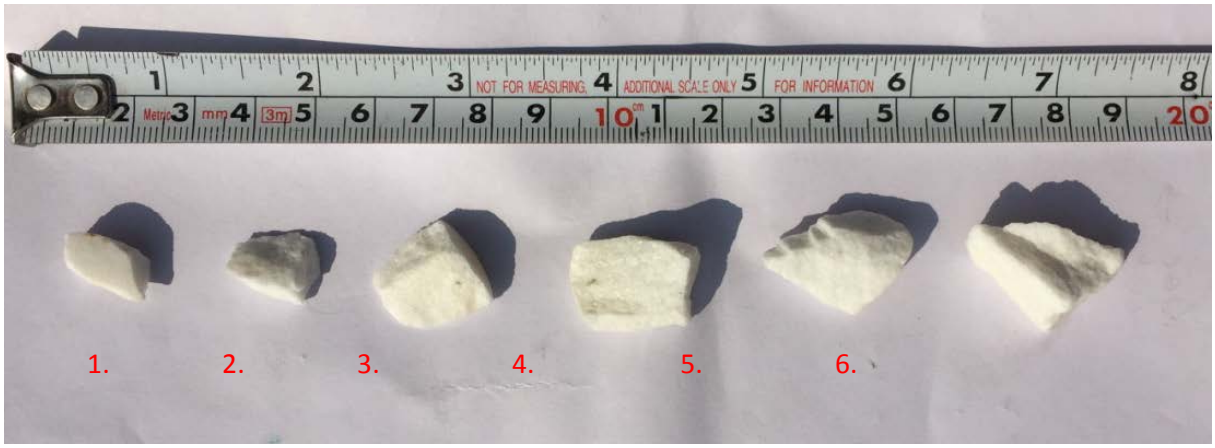


Figure 102 Variation in stone aggregate sizes

Table 11 Cladding Panel Mockup sample details

S.No. Date	Aggregate (size, shape, colour, quantity and source)	Cement A (Sri Ram Cement: light grey)	Cement B (White Cement)	Marble dust or other additives	Sand (quantity, particle size and source)	Ratio Base Layer :- cement, sand, aggregate	Ratio top layer Grey cement, White cement, Marble dust & White aggregate
11/11/2016 Sample 1	Sizes: 4, 5, 6	J.K grey cement	J.K white cement	Marble dust	Coarse brown Ghaggar sand	1 Part cement 3 Part Sand 4 Part aggregate	1 Part cement 1/2 part white cement 1/4 part marble dust 2 aggregate
11/11/2016 Sample 2	Sizes: 1, 2, 3	J.K grey cement	J.K white cement	Marble dust	Coarse brown Ghaggar sand	1 Part cement 3 Part Sand 4 Part aggregate	1 Part cement 1 Part white cement 1/2 part marble dust 3 Part 14aggregate
30/11/16 Sample 2	Sizes: 4, 5, 6	J.K grey cement	J.K white cement	Marble dust	Coarse brown Ghaggar sand	1 Part cement 3 Part Sand 4 Part aggregate	1.5 Part cement 1/2 Part white cement 1 Part marble dust 3 Part aggregate

14/12/16 Sample 1	Sizes: 4, 5, 6	J.K grey cement	J.K white cement	Marble dust	Coarse brown Ghaggar sand	1 Part cement 3 Part Sand 4 Part aggregate	2 Part cement 1 Part white cement 1 Part marble dust 4 Part aggregate
14/12/16 Sample 2	Sizes: 4, 5, 6	J.K grey cement	J.K white cement	Marble dust	Coarse brown Ghaggar sand	1 Part cement 3 Part Sand 4 Part aggregate	1.5 Part cement 0 Part white cement 1.5 Part marble dust 3 Part aggregate
14/12/16 Sample 3	Sizes: 4, 5, 6	J.K grey cement	J.K white cement	Marble dust	Coarse brown Ghaggar sand	1 Part cement 3 Part Sand 4 Part aggregate	1 Part cement 1 Part white cement 1 Part marble dust 3 Part aggregate

Process

1. Base layer of Cement, sand & aggregate with ratio 1:3:4 filled in the mould leaving 10mm space from top for the top layer.

2. Allow to set for 15 to 20 minutes and sprinkle dry cement over the base layer.

3. Top layer of cement, white cement, Marble dust & just enough white aggregate to fill the mould as per ratio & flushed till top.

4. Allow the top layer to set for 30 minutes and wash off the top layer with a brush and water to reveal the white aggregate.

5. Place outdoor for weathering and allow the surface to get lighter in shade

Figure 104 Color Match with existing panels

Figure 105 Dry mortar for top layer

Figure 103 mixing of aggregate with mortar and filling it in mould

Figure 106 Top layer Cleaning of sample with water & soft brush and Wet sample

Figure 107 Samples

14/12/2016Sample 1 14/12/2016, Sample 2 14/12/2016, Sample 3 30/11/2016, Sample 4

7.5 Use and Interpretation Plan

Gandhi Bhawan has retained its original use to a large extent serving as an important venue for discussions related to the Institute of the Gandhian Studies. During the preparation of this Conservation Management Plan, the Gandhi Bhawan auditorium was used extensively to host all workshops and conferences associated with the plan preparation. The University hosts several functions and events at this auditorium throughout the year. However, the conference room and library need to be used to a larger extent. In addition, additionally, interpretation of Gandhi Bhawan and its significance needs to be displayed through expressions such as the original model of Gandhi Bhawan by Pierre Jeanneret, interactive database showing all conducted research on Gandhi Bhawan to visitors and static displays/panels along with signage explaining the significance of each space. More recently, Gandhi Bhawan has observed a greater footfall of national and international visitors along with architecture and art students fascinated with Modernist forms.

The exterior entrance space which is often used for food and beverages in an adhoc manner during an event needs to be relocated across the garden form the entrance to facilitate a better allocation for such activities and to retain the ambience of Gandhi Bhawan. Architect's Office at PU has already prepared such a plan that may be implemented.

In the interior spaces, most of the furniture and layout is retained. Colour scheme needs to be retained as per original. Furnishings such as blinds/ curtains need to be more sensitive. A detailed use plan along with some proposals is outlined here including a Universal Access Plan developed after survey by a visually impaired intern from DRONAH. Functional and operational aspects such as services and lighting need to be addressed too.

7.5.1 Proposed Views for Use &Interpretation

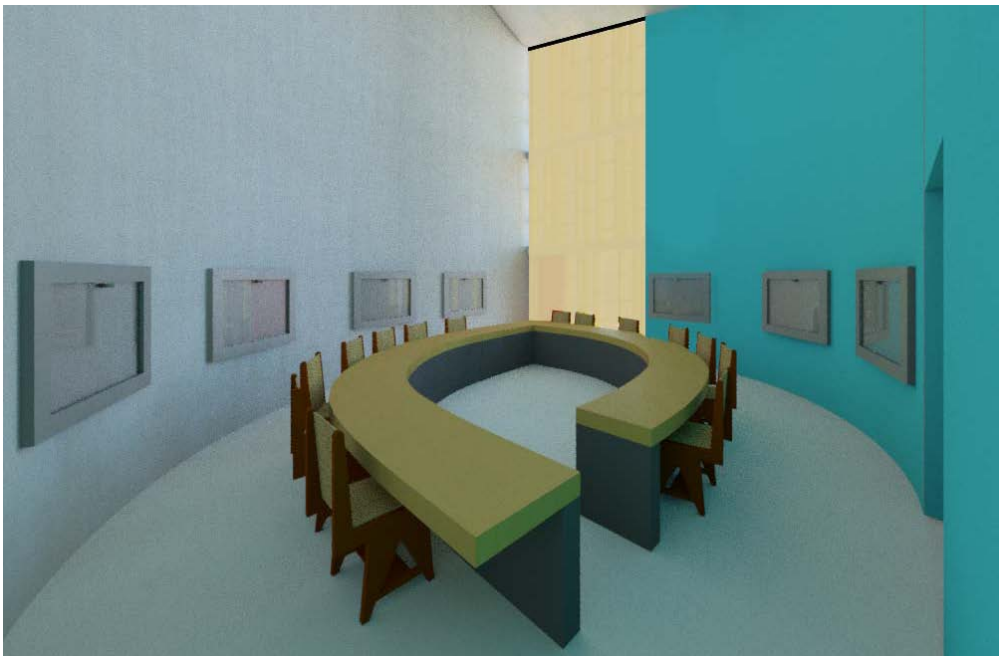
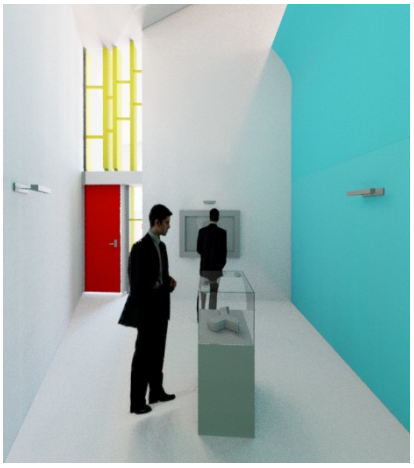


Figure 109 Proposed view of Committee room



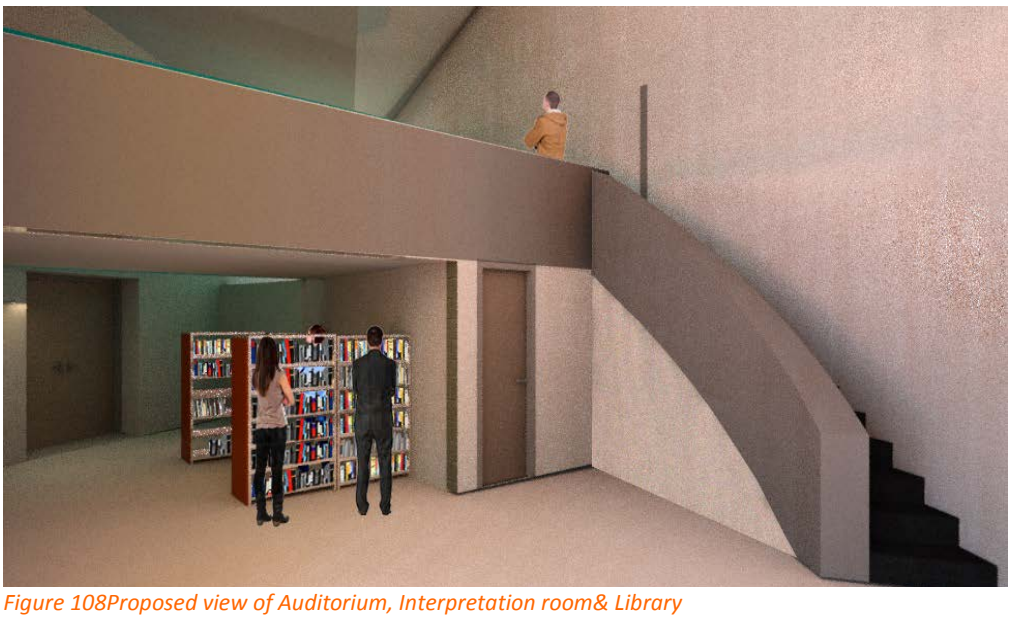


Figure 108Proposed view of Auditorium, Interpretation room& Library

Proposal for Universal Access Plan (To be read in conjunction with the related drawings) The "universal Access Plan" for Gandhi Bhawan Chandigarh ensures the easy navigation within the premises of the building, easy access to the building and the access to all the murals, photographs and paintings within the building. This building not only reminds us of the Gandhian Philosophy but it itself is a wonderful work of Modern architecture. Hence, we will have to make this building accessible for each visitor.

In this plan, we will incorporate various solutions, which can make this site universally accessible for all.

Issue: The main access road in front of the building does not have any directional signage to entre in the building. In addition, there is no information signage at the entrance for the visitors to get the overview of site.

Recommendation: Need of Tactile Paths: There should be metal speed bumps on the access road in front of the Gandhi Bhawan, which will work as an indicator for visually impaired visitors if they come alone. This speed bump will let the visitor know that Gandhi Bhawan is just in front of them and they will have to take the right turn to reach the tactile path, which will lead them to the gate. At the main entrance of Gandhi Bhawan, there should be three roots of tactile paths. First, it will go to the left until the water cooler and then turn right from there to reach committee room in between and then lead to the washrooms. This tactile path will also run in both the wash rooms- the ladies and the gents. Another path will run straight to the Auditorium. The third path will run to the right of the main entrance, which will lead the visually impaired visitor to the library. These tactile paths are very important because it is extremely helpful for a blind person to move around. These paths provide easy navigation that helps to walk freely and independently.

Issue: The library does not have any database to find the books for the users. There is no provision of the tactile path, universal access signage within and around the building for the visitor

Recommendation: Installation of a computer in library: There should be a computer installed in the library with the screen reading softwares (JAWS or NVDA). It is also suggested that some of the important books should be provided in the E format (.docs, .doc, .pdf, e-pup ETC) so that a visually impaired person can also read them with the help of the installed computer and can have the glance of Gandhian philosophies. The installation of a computer with the screen reading software will make the library accessible for every visitor, so if they want to learn or know something they can easily go to the library and refer the prescribed book for it.

Audio Description of the Murals and Photographs: It is recommended that an audio description should be provided of all the Murals and the Photographs of Gandhi so that a blind visitor can feel and understand that how do the photographs look like. If possible we can also provide the tactile paintings of some important photographs which can be touched and felt with a touch of the hands. These paintings can be made like the paintings already there in the National Museum Institute 'Anubhav Gallery'. These audio/tactile description of the various photographs and the Mural will be extremely helpful a blind visitor to understand them better. The first row seats of the auditorium should be reserved for the physically challenged persons as they will not be able to climb up for the upper rows. Most of the activities take place on the ground floor so it is quite manageable for a physically challenged person to take part in such activities. All the suggestions provided above are extremely essential for Gandhi Bhawan to make this site accessible for every visitor.

7.5.2 Signage Strategy

Considering the need for basic signage for the visitors along with interpretation and universally accessible signage, it is recommended to follow the existing Modernist vocabulary of signage for Gandhi Bhawan that shows embossed letters which also serve well for the visually impaired as well as conform to the modern aesthetics. The letters may be embossed in stainless steel or brass plate or alternatively may also be fixed directly on wall surface. Some options are presented below and in the drawings section. It is hoped that the signage strategy used for Gandhi Bhawan can be streamlined into the signage strategy for the entire campus.

The signage type needs to include the following:

1. Directional/ Information Signage – such as 'Gandhi Bhawan' existing on the building or on doors of interiors spaces (Library, Conference room)
2. Interpretation Signage – Signage may have more text to explain the significance/ interpret interiors spaces/ building structure/ mural/artwork etc.
3. Emergency Signage – specifically requires as part of the risk management plan and need to be of international standards in graphics

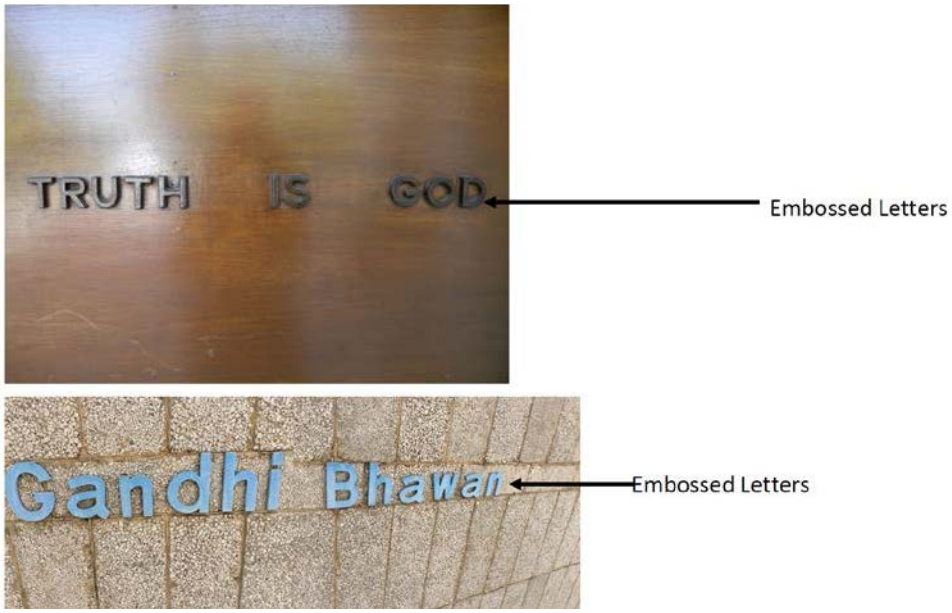


Figure 110 Existing signage at Gandhi Bhawan

Figure 111 Signage strategy of using Stainless steel or Brass letters

Figure 112Proposed Directional Signage outside the room (currently mentioned as Director's room it is in disuse and is proposed as an interpretation room to display Gandhi Bhawan model and research related to the archives and construction of the building

Figure 113 Proposed Interpretation signage in lobby to explain about Gandhi Bhawan interior layout and the mural

Figure 114 Proposed Directional/Information signage for the toilet area including braille and emergency signage

Figure 115 The first workshop and exhibition for Gandhi Bhawan Conservation Plan in Dec. 2015 engaged professionals and academics in a discourse on Modern Architecture in India.

Figure 116 Visitors engaged in sketching Gandhi Bhawan shows the increasing interest in modern heritage structures in Chandigarh

7.6 Lighting, Infrastructure and Services

Installing state of the art new services and revamping the lighting plan to fit in with present need and use of Gandhi Bhawan is a major challenge in the building. Following recommendations are outlined for various services based on the assessment:

1. Electrical conduits maybe replaced by chasing to be concealed instead of adding to unsightly super imposed conduits on the wall. Wall plaster is one layer that has lower significance value and can be compromised for concealing services. However, no such action is feasible in the flooring, which is of higher value. Conduits should be documented rigorously to avoid unnecessary interventions into the wall.
2. Lighting equivalent to 500 lux is a requirement. Lighting fixtures are of extremely high value as per Modernist style in the interiors hence no new light/fan fixture should be added. Floor embedded light fixture for the mural to be re-installed as per the original design.

   Lighting requirement needs to be planned to be covered through increased lux in the existing cove lights. In case of specific are required lights, pedestal lights (such as on stage of auditorium) may be used as per requirement. A lighting plan developed by Architect's Office, Panjab University is enclosed in the proposed set of drawings along with some additional inputs.
3. Since the conduits can be placed in the walls, any other service lines (CCTV/speakers/IT) may also be incorporated in the conduits. It is to be noted that placement of any fixture has to be done sensitively. Advanced fixtures, which are more sensitive and smaller/less conspicuous merging with the interiors, are to be used only.
4. Air-cooling is a major challenge especially in the auditorium space. While a number of options for air conditioning have been explored by the Architect's Office previously and by the project team during preparation of this conservation plan, there are limited options for air conditioning that will not result in a deterioration of value. Hence, it is recommended that monitoring of microclimate and temperature/humidity be carried out for 1 year after filling the water in the pool. Moreover, air circulation through skylight and windows is ensured. Any decision related to air conditioning may only be taken after a complete monitoring with record of temperature and humidity conditions in each exterior and interior (with the presence of pool water and proper air circulation) in all seasons for 1 year.
5. Acoustical treatment in auditorium and committee room may be done only after analysing the need as per requirements. Mock-up of acoustical treatment for the final finishes carried out on site. Mock- up for the acoustical treatment were done in order to maintain the original look of the ceiling in auditorium and committee room .

7.6.1 Proposal views for lighting system in Gandhi Bhawan

Figure 117 External lighting options for Gandhi Bhawan

Figure 118 Proposed view of internal lighting in auditorium

Figure 119 Proposed view of lighting in committee room with interpretation panels

Figure 120 Artificial Lighting view in interpretation room

7.6.2 Proposals views for Air –conditioning system in Gandhi Bhawan

Geothermal HVAC (heating, ventilating, and air conditioning) brings a building in harmony with the earth beneath, taking advantage of subterranean temperatures to provide heating in the winter and cooling in the summer.

A geothermal system consists of an indoor handling unit and a buried system of pipes, called an earth loop, and/or a pump to reinjection well. Geothermal unit will be placed in the storeroom at ground floor, which will eliminate the outdoor units for our Air conditioning in the building.

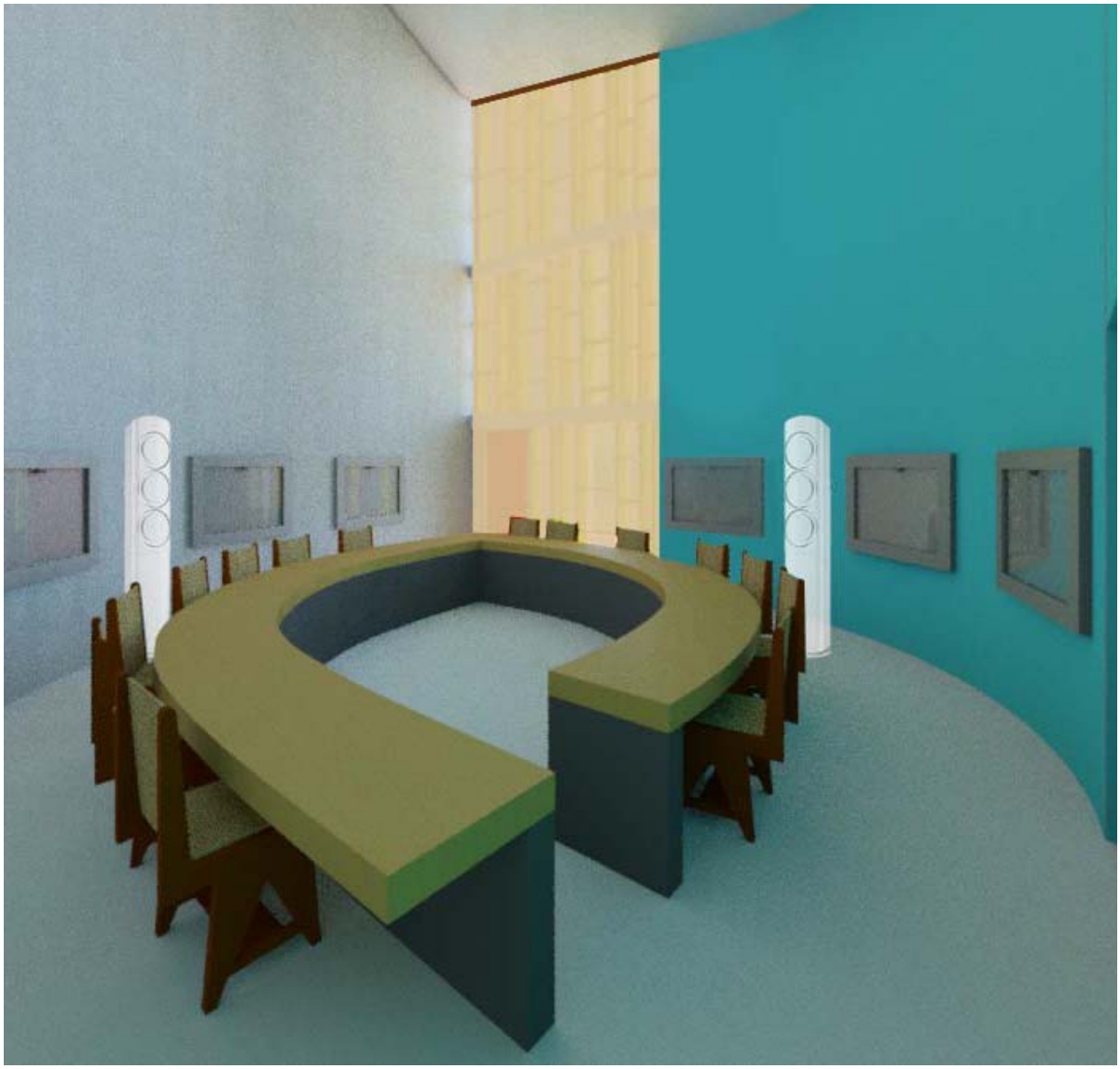


Figure 121 View showing the option for floor standing units in committee room

Figure 122 View of Option 1 : false ceiling A.C. units in the Auditorium

Figure 123 View Option 2 floor standing units in Auditorium

Figure 124 Grill A.C. option for Auditorium

7.6.3 Soundproofing Mockup

Project : Acoustic treatment mockup at Gandhi Bhawan

Acoustics Expert : Mr. Deepak Goyal, AV Acoustics, Chandigarh.

Area : 4' X 4' = 16 Sq Ft

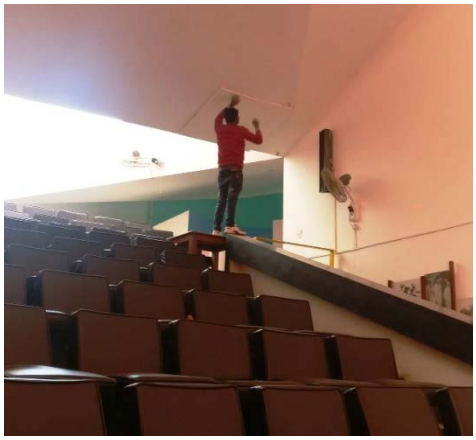
Location : Auditorium ceiling

Materials used :

1. Base material 8/10 mm of acoustical fleece.
2. Wood composite magnesium oxide board (1ft X 1ft)
3. Epoxy resins for filling the joints
4. Stainless steel screws of suitable size.
5. PVC cleats.
6. Top paint coat as required in emulsion /distemper or lime white.

Procedure :

- 4ft X 4ft area selected & marked in the auditorium as per convenience.
- 16 sq ft acoustic Fleece of 8mm thickness fixed onto the selected area with screws.
- 4 panels of size 1ft X 1ft (Wood composite magnesium oxide board) with 15mm thickness fixed above the acoustic fleece with the help of screws & PVC cleats drilled into the RCC slab.
- The joints flushed and smoothened with epoxy resin.
- White cement putty used to achieve a smooth surface for final layer of paint.
- Lime wash matching with the existing shade of the ceiling done to get the original look of the ceiling.
- Total thickness of acoustic layer achieved is 23 to 25 mm.



Demarcation of the selected area for the Mockup

Acoustic Fleece as a base layer

Wood composite Board fixed on top of base layer

Joints flushed with Epoxy resin

Rough edges and joints finished

White cement putty base for top layer of paint

White lime wash matched with ceiling

7.7 Archive Management and Presentation

The original drawings that have been located at the Architect's Office should be restored by a qualified paper conservator and stored in an appropriate manner after being digitally reproduced. These should be described in their context and be presented to audience in an engaging manner to communicate the significance of Modernist architecture in India and in Chandigarh. The models that have been located should also be presented and protected from damage as part of the interpretation strategy for Gandhi Bhawan.

INTACH Conservation Institutes team undertook the condition assessment of architectural drawings in possession of Architecture Department of Punjab University (Chandigarh). These are mostly architectural and engineering drawings on tracing paper.

Most of these drawings are of Gandhi Bhawan, a major landmark in the city of Chandigarh designed by the architect Pierre Jeanneret, a cousin of Le Corbusier. It is an auditorium hall that sits in the middle of a pond of water. A mural by the architect greets visitors at the entry. The words "Truth is God" are written at the entrance. Today it also houses a collection of books on Mahatma Gandhi.

About the architect: Pierre Jeanneret was born in 1896 and opened an atelier with his cousin Edouard Jeanneret, who assumed the pseudonym Le Corbusier. Together they designed the most famous buildings of the 20th century like the Villa Savoye, the house Clarté in Geneva or the Pavillon Suisse in Paris. This productive cooperation ended with the Second World War, when Le Corbusier decided to support the Vichy regime and Pierre decided to work with the Résistance. In 1955 they united again for the new capital Chandigarh and started to design a visionary city. Le Corbusier soon decided to leave the project to others, but Pierre stayed there for another 15 years and finished the project. They put together the modern spirit of the western World with the rural

spirit of the Indian craftsman's work, and created an archaic and modern language. They designed all details and created an iconic unity of landscape, architecture and furniture.

Collection: The Architectural Department at the Punjab University Chandigarh presented the group of 43 intrinsically valuable, historically important plans on tracing paper, out of which thirteen belong to Gandhi Bhawan. Most plans are drawn in stable media: black carbon. Most of the plans have been extensively repaired with a variety of tapes. Also, in size, they are larger than 70 cm x 60 cm. All the maps are stored in rolled condition. The condition of most nineteenth-century translucent paper ranges from dry and brittle to fracture into tiny splinters. Some tracings have been repaired with various mending tapes and a wide variety of adhesives. Most are too fragile to handle without support. Some of the tracings have been attached to a secondary support; a sheet of pressure sensitive tape. Such unscientific conservation has led to further deterioration as adhesives used in commercial tapes create permanent yellow-brown stains with time which are irreversible.

Material: Tracing paper, or transparent paper as it is also called, has been used for a wide variety of designs in archives, museums and libraries. Historically, engineers, architects, and builders used tracing paper for work plans. Artists were also drawn to tracing paper because of its translucency (low opacity allowing light to pass through) and relatively low cost. Also, it allowed them to trace or create drawings which could be copied precisely.

The reason ordinary paper is opaque is because the air trapped between the cellulose fibres in paper scatters light. A 'normal' sheet of paper is converted to tracing paper by filling the spaces between the fibres with a material that has the same refractive index as the cellulose.

One way to make tracing paper is to press the air out of paper. Another method is to make paper from pulp that has been beaten in water long enough to divide and hydrolyze the cellulose fibers making them highly fibrillated and gelatinous. A third way to make tracing paper involves a chemical process. When paper is soaked in sulfuric acid for a few seconds, rinsed, and dried, some of the cellulose is converted into a gelationous amyloid form. Tracing paper tends to be lighter and stronger than original paper. It's also lower in humidity and resists water damage. Tracing paper is resistant to oil, grease and to a large extent impervious to water and gas.

Out of this collection, one drawing was received by INTACH Conservation Institutes Delhi for conservation. The following are the details of conservation process carried out on the object received at ICI Delhi.

7.7.1 Details of the Object

Lab No. – I/DL-HS-1135-0317

Subject: Elevation from Road side (Elevation parallel to outer-wall of lav block

Medium : Tracing paper

Dimensions : 96 x 71.2 cm

7.7.2 Condition of the Object:

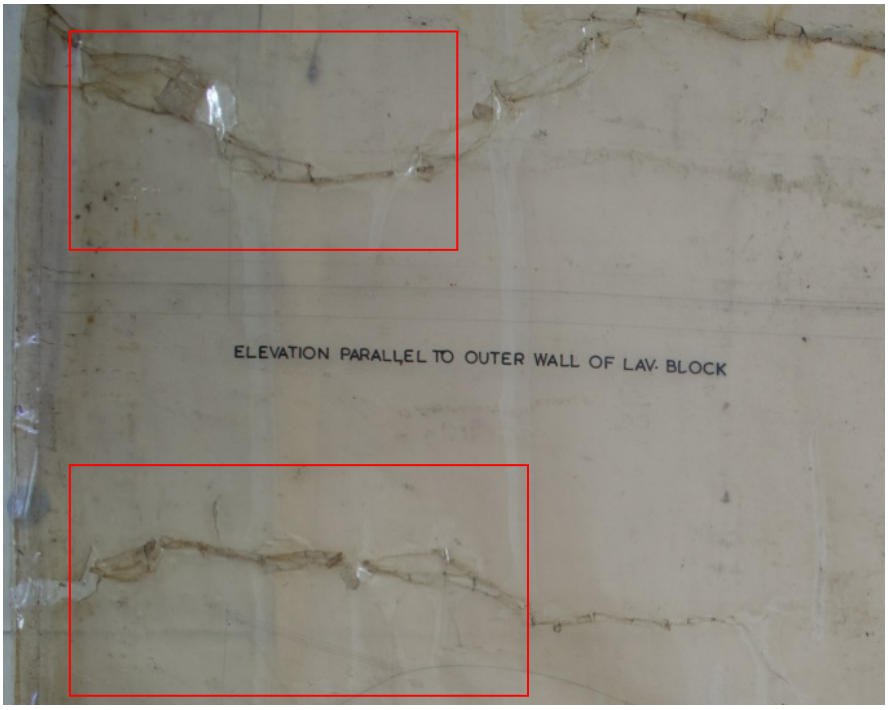
Front view of the object

Back view of the object

- There was accumulation of dust and dirt on the object.
- Previous unscientific repair done in the form of a pressure sensitive adhesive tape lining. This had over the period of time made the paper stiff and brittle.

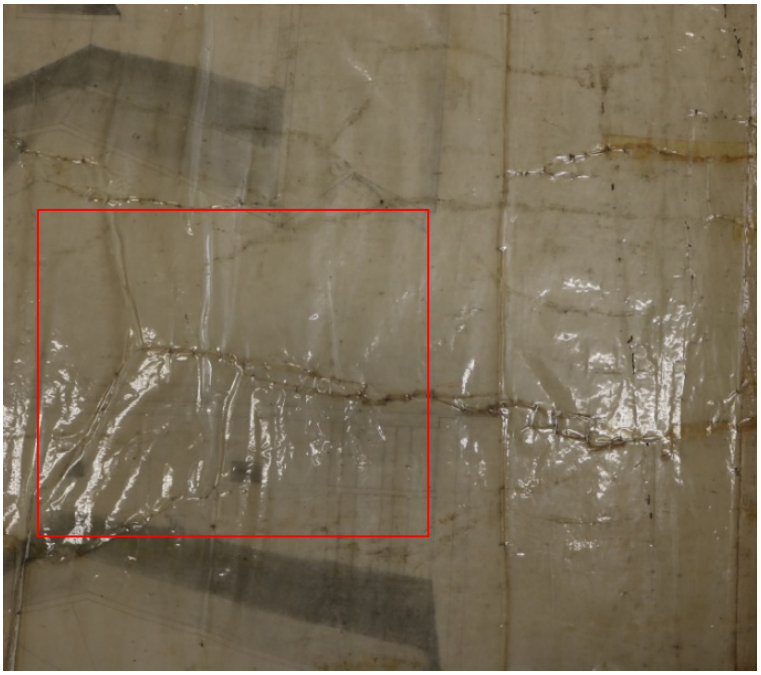
Previous restoration

- There were large tears and creases in the original drawing and these were not flattened or eased out before lining. Hence overlap of paper in various areas of realignments was evident. Also this prolonged creasing led to further damage and weakening of the tracing paper.



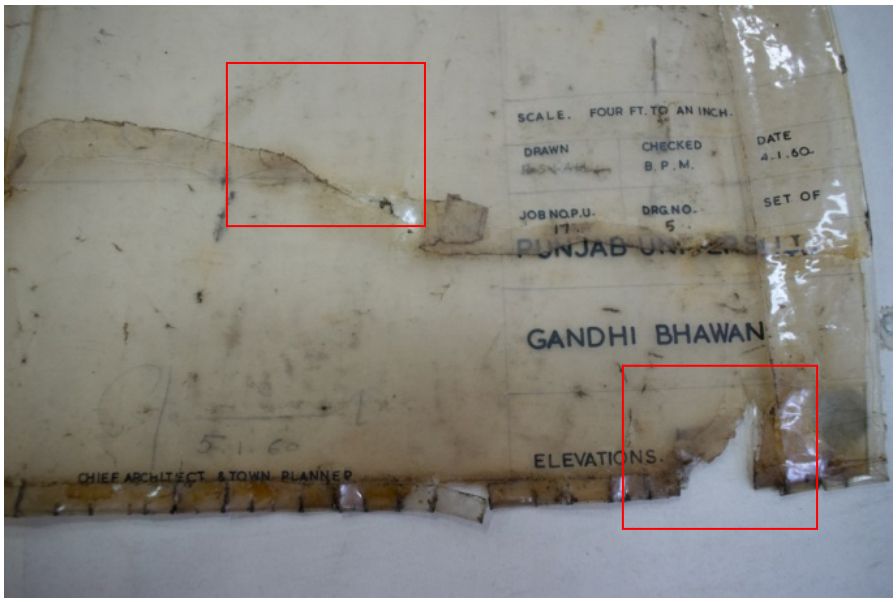
Overlap of paper

- Due to the previous improper lining, air pockets had appeared between the object and the lining support.



Air pockets

- Yellowing observed in the object due to the ageing of the paper and resulting acidity.
- Mechanical damage in the form of tears, losses and damaged edges was visible due to poor handling and improper storage.



Tears and losses

- Waviness and fold marks were present in the object as it was stored in rolled condition.
- Loss of tracing paper was visible at many places.
- The object was exposed to moisture as is evident from the water stains observed on the object.

Water stains

TREATMENT GIVEN:

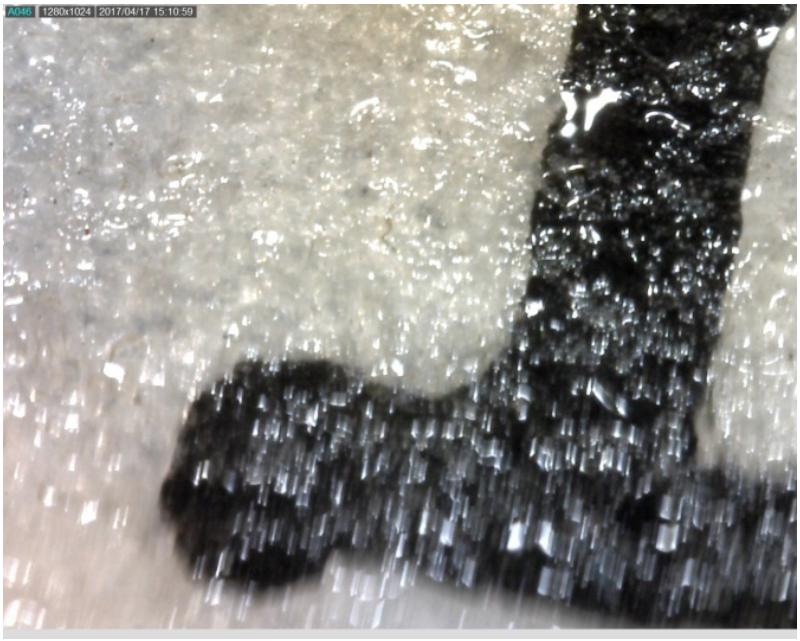
- Documentation with detailed photography was undertaken. Photography was done in high resolution digital format, including normal and raking lighting conditions; documentation of the front and reverse was done. Photo documentation was done before, during and after treatment as well as in-process.

Examination

Optical examination:

- **Raking light:** Surface abrasions are visible in raking light.
- **Simple lens:** Losses and small holes were observed when seen through simple lens.
- **Digital Microscopy:** Fibre type, length, presence of adhesive used in previous restoration was seen and ingrained stains were visible through digital microscopy.

Digital microscopy analysis



Presence of adhesive (under digital microscope)

pH test: **Before cleaning – 6.0**
After cleaning - 7.0

- Removal of previous restoration in the form of lining. The pressure sensitive lining was removed mechanically using warm air and the remaining adhesive was removed by suitable solvents.

Solvent test:

Solvents	*Safe*	*Cleaned*	*Safety Margin*
Aliphatic hydrocarbons			
Alcohols	✓	✓	✓
Ketones	✓	✓	✓
Acetone			
Aromatic Hydrocarbons			
Combinations			

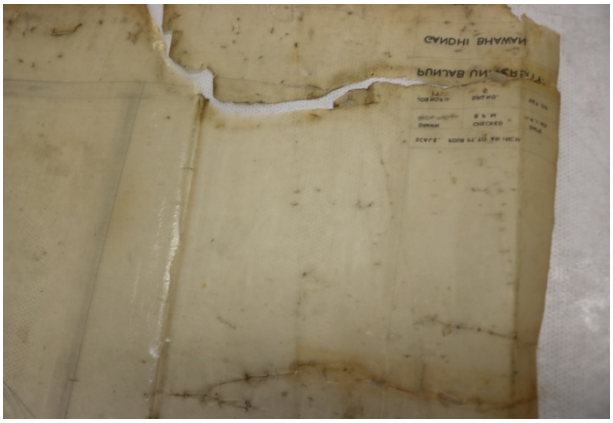
Removal of lining

- Dry cleaning was carried out with grated rubber crumbs and soft brushes to remove the superficial dirt.

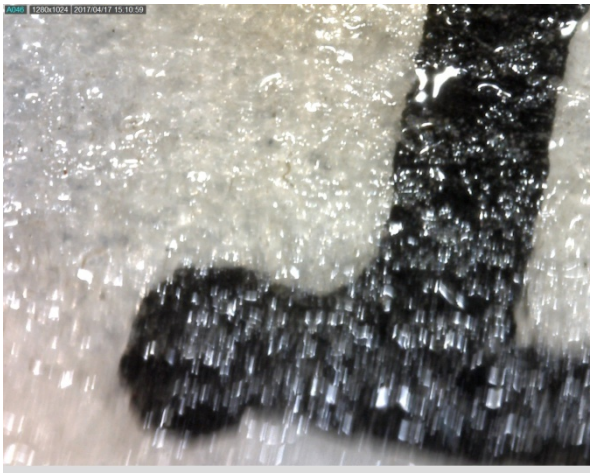
Dry cleaning with eraser

- Solvent cleaning was done to minimize the stains.

Solvent cleaning



After cleaning



Presence of adhesive (under digital microscope)

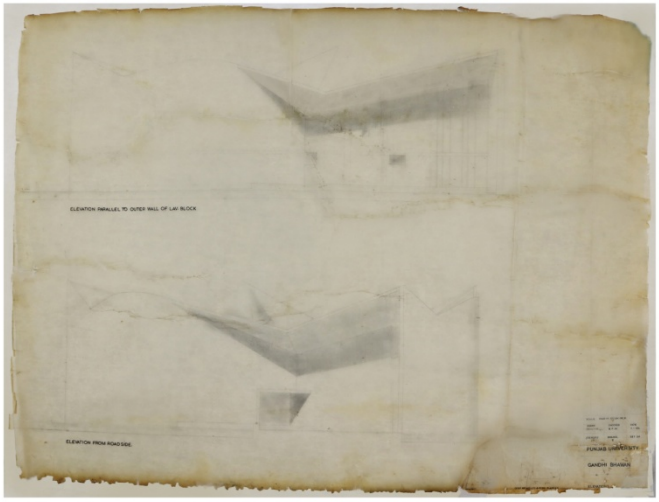
After cleaning (under digital microscope)

- Flattening has been done with the help of the moisture and mechanical pressure to remove the creases and air pockets.

Flattening of creases

- The tears were pasted along the edges by using suitable adhesive and handmade paper was laid over the tears and light pressure was given.
- The patch-mending was done with the help of the toned handmade paper by using a suitable adhesive.
- Full lining was given to the object with the suitable handmade paper and adhesive. The lining has given to provide strength and flexibility to the object, and allowing them to be handled far more easily. The lining tissue was very fine, which kept the verso of the plans visible and did not really affect the translucent nature of the papers.

Before conservation treatment



After conservation treatment

7.7.3 Post-Treatment Care

Proper Care and Handling of Work on Tracing paper

Works on tracing paper generally refer to flat (as opposed to bound) paper materials, including, drawings, prints, posters, and maps. Taking proper care when handling any collection item is one of the more effective, cost-efficient, and easily achieved preservation measures.

Appropriate storage and handling are fundamental to the preservation of all architectural drawing collections. For the majority of drawings on paper, housing flat in an acid-free folder is the best ways to protect the drawing. Encapsulation in polyester folders should be considered for very fragile or damaged items, as well as for drawings that are frequently handled. Architectural drawings are often stored rolled. Yet, housing them flat is the best way to reduce damage from handling especially for acidic brittle tracing paper.

Take proper care when handling flat objects :

- Having clean hands and a clean work area and using cotton gloves for handling.
- Keeping food and drink away. Keep spaces clean to avoid pests and insects.
- Using pencil, not ink, for labeling or to make any necessary marks or inscriptions; in addition, only make inscriptions when the paper is on a clean, hard surface, to avoid embossing the inscription into the paper, which will be visible from the other side
- Not using paper clips, other fasteners, "dog ear" folding to mark or organize leaves
- Not using rubber bands, self-adhesive tape, and/or glue on tracing paper

Proper Storage for the collection :

- Good storage significantly prolongs the preservation of tracing paper materials and includes:
- A cool (room temperature or below), relatively dry (about 35% relative humidity), clean, dark and stable environment (avoid attics, basements, and other locations with high risk of leaks and environmental extremes and temperature fluctuations)
- Minimal exposure to all kinds of light; no exposure to direct or intense light which causes fading and creates a chemical reaction that weakens the paper.
- Distance from radiators and vents (hot and cold air)
- Supportive protective enclosures. Supportive protective enclosures include: acid- and lignin-free covers or boxes (all available alkaline buffered or neutral pH)
- Individual/isolated storage of papers (with separators) to prevent acids and inks from migrating into the other works on tracing paper.
- Ideally furniture made from anodized aluminium is excellent. Metal storage cabinets that have solvent free powder coating may be used for flat and easily retrievable storage.

Examples of storage for the collection

Also, any changes noticed post conservation may immediately be brought to the attention of a trained conservator.

7.8 Risk Management

Risk management guidelines were formulated for Gandhi Bhawan based on the comprehensive risk assessment. These guidelines articulate strategies for mitigating risks and for emergency preparedness and response in case of any disaster.

7.8.1 Mitigation Measures

For Fire Mitigation: -

- Electrical wiring in the building needs to be upgraded without infringing upon the visual character of the building.
- Adequate number and quantity of carbon dioxide based fire extinguishers need to be put in place at adequate places in Gandhi Bhawan as per the drawing. These needs to be regularly inspected and refilled. ABC type dry powder type extinguisher of 4 Kg each is prescribed for the building.
- Battery operated Smoke detectors need to be installed in the building especially in the main hall and the library building.
- Adequate arrangements for water supply need to be made.

For Earthquake Mitigation:

- Distressed concrete panels should be fixed again taking into account protection from lateral movements during earthquakes.
- Regular monitoring of cracks need to be carried out
- All the light fixtures, hangings need to be anchored well so that they do not fall over or collapse in the event of an earthquake.

For mitigation against heavy rainfall:

- The rainwater and drainage pipes/lines should be regularly cleaned and monitored for any blockage.

For mitigation against theft and vandalism:

- CCTV Cameras need to be set up at the entrance and in the auditorium and library to monitor the movements against potential theft or vandalism.
- Adequate number of trained security staff need to be put in place at appropriate locations during special events.

Evacuation Routes, Refuge area for People and Temporary Salvage/Storage Areas for Heritage fragments need to be put in place as per the plan.

Essential Equipment for Emergency Response:-

For Search and Rescue:

- Safety Jacket
- Safety Helmet
- Safety Gloves (fire/heat resistant)
- Masks
- Emergency Light / Battery Operated Torches
- Ropes
- CSI Tape (for Cordoning)
- Stretcher
- First Aid Kit (to be identified with the help of a medical professional)

For Salvaging Collections:-

- Aprons
- Illuminated Jackets (for working in the dark)
- Safety Helmets
- Special rubber gloves for handling collections
- Emergency Light/Batter Operated torches
- Foldable Tent (Gazebo)
- Polythene (plastic) Sheets approximately 40 inches wide.
- Masks
- Bubble Wrap
- Plastic baskets
- Blotting paper
- CSI Tape for cordoning

-

Emergency Team and its Responsibilities:

- Team consisting of the internal staff of the site, which is supposed to be the first responder to any emergency, so that it does not turn into a bigger disaster.
- Team-Building and Coordination for effective relief, rescue of visitors / staff and salvage of objects
- First Few Hours are Crucial.

Key Tasks:

- To undertake first response actions before external emergency services arrive.
- To assist external emergency services when they reach the site
- To undertake key measures to facilitate recovery of the building and objects after external emergency services leave the site

General Guidelines:

- The staff should be given roles to perform in emergencies according to their expertise in the field they work with proper command structure.
- The entire staff should know appropriate responses and their roles in an emergency.
- Each emergency team should divide responsibilities among it and should not concentrate in one activity or location. For example, while some members of collections team may salvage the collections, others may stay back to take care of prepare their temporary storage area. However, the team should be ready to plan for the unexpected.
- Emergency response should involve activating all emergency teams and services and following necessary procedures by coordinating among various teams.
- Coordination with nearest fire office, police station, hospital and other line departments should be established beforehand so that they are aware of the shortest route to the site and have sufficient knowledge of the layout of site.
- The emergency team should hold regular meetings of various team heads for general review the activities and the status of plan. Each team leader should also convene the meeting of its respective team members on regular basis to practice and review the responsibilities of the team.
- Each emergency team leader should have a back-up in case the designated leader is unable to discharge his or her function due to unforeseen circumstances.

- Procedures should be established for the notification of an emergency, which is understood by all the staff.

- All the staff members especially the emergency team members should be well versed with all the areas in the site. They should know the main evacuation routes as well as the emergency signage.

- The staff members also are aware of the areas that are demarcated for refuge as well as temporary storage of salvaged collections.

- Special public areas should be demarcated for stationing of emergency services such as fire, police and ambulance during an emergency situation. Such areas should be declared as 'No Parking Areas' and easily accessibility to these areas should be ensured all the time.
- It is crucial that each emergency team member is equipped with wireless device for internal communication. Communication with all the team members should be feasible through mobile. It is important to check their connectivity.
- Recovery process should commence only when all safety aspects have been taken into consideration following a disaster and when the incident has been declared safe by the proper authorities like police, fire, electricity, building control etc.
- Response procedures should be for both during and outside business hours, alerting chain of command including other organizational departments e.g. security.

Composition of Emergency Team:

- Rescue Team
- Building and Infrastructure Team
- Administration and Supplies Team
- Objects Salvage Team
- Communications Team

Objectives of the Emergency Drill:

- To identify existing strengths and shortcomings in emergency response in Gandhi Bhawan.
- To familiarize the participants with the response procedures (actions, duration and sequence and communication channels) and create an emergency team
- To test proposed emergency preparedness measures (effectiveness of signage, proposed evacuation routes in terms of movement, time needed).
- To test the emergency communication and coordination with external agencies such as fire, police, hospital, media etc.

Figure 125 Emergency drill at Gandhi Bhawan in July 2016

Disaster Scenario and Responsibilities of Emergency Team Members:-

A fire breaks out in the library of Gandhi Bhawan at 5 PM of Friday Evening due to electric short circuit, when a function is going on in the auditorium with around 50 people in attendance.

1. The library staff tries to extinguish the fire but fails to do so as the fire is spreading rapidly due to presence of combustible material (paper, books, furniture). The staff calls the Emergency Team Coordinator (Manish), who then activates all the internal emergency team heads (Rescue, Building & Infrastructure, objects salvage, administration/supplies and communications). He will also call the fire office, police and hospital.
2. Rescue team will first go to evacuate injured people (in the library and lobby) and other visitors in the auditorium. The people will be brought to the assembly area (park across the road). The injured will be given first aid (by the medical officer of PU)
3. Building and Infrastructure team will switch off electricity and activate water supply source. Supplies team will provide helmets, jackets, gloves etc. to the rescue team to help with evacuation.
4. Communications team will help in internal communication and external communication with media and other external agencies like fire office, police, ambulance etc.

5. Rescue team, Building/infrastructure team and administration/supplies team members will assist fire, police and hospital staff to conduct evacuation, control the fire and provide first aid.
6. After the fire and police teams declare the end of emergency, building/infrastructure team will make inspection and create access for salvage team to enter and do the operation.
7. Salvage team enters the building, makes rapid damage assessment (through photographs) for objects damaged by fire and water, prepares plan for salvage, collects supplies from admin/supplies team and moves collections to temporary storage area (next to the fine arts museum), security team will manage the security of access route and temporary storage area. After moving the collections, the salvage team makes documentation and condition mapping as per the format.

Emergency Evacuation Plan

Emergency Contacts would consist of the following: -

1. Emergency Team Coordinator
2. Assistant Security Officer (PU) – Head of the Rescue Team
3. Head of Building and Infrastructure Team
4. Head of Objects Salvage Team
5. Head of Communications Team
6. Chief Medical Officer, PU
7. Electricity Officer, PU
8. Water Supply Officer, PU
9. Fire Tenders, Sector 11, Chandigarh
10. Police Station, Sector 11, Chandigarh
11. General Hospital, Sector 16, Chandigarh

Guidelines for Salvage of Heritage Objects:

- Enter the site only if declared safe
- Prepare all relevant information before
- Document the incident
- Prioritize collections to be salvaged and protected in-situ based on their value and vulnerability.
- Evacuate only if required and if another space is available
- Work in pairs, use safety gear
- Observe minimal intervention
- Debrief and report

Format for Rapid Assessment of Salvaged Objects (Refer Appendix)

8. IMPLEMENTATION AND PHASING

8.1 Implementation and Phasing

The conservation management plan for the Gandhi Bhawan provides a framework for an integrated conservation planning, addressing all issues related to the building and its surroundings. The Panjab University is committed to phased implementation of this plan for sustaining the cultural significance of this Grade I Modern Heritage structure of Chandigarh.

Along with implementation of the plan, the University is simultaneously focusing on capacity building and outreach activities for conservation of modern heritage in the entire campus. The implementation of this plan can be broadly considered in the 7 main sections covered in the plan and a 3 year implementation and phasing for the plan is outlined below.

Table 12 Phasing

	CMP WORKS	1 YR	2 YRS	3 YRS
1.	Landscaping – reviving the Pool			
2.	Conservation of Exterior panels			
3.	Conservation of Interiors and Furniture			
4	Services including Air conditioning if required after microclimate monitoring			
5	Interpretation and Use proposals			
6	Risk Management - CCTV and Fire Fighting			
7	Archival drawings- conservation and storage			

8.2 Budget and funding opportunities for Gandhi Bhawan and Panjab University

The implementation of the CMP for Gandhi Bhawan is dependent on the availability of funds. The block estimates for various proposals under CMP as supported by detailed drawings in the annexures amount to a total of Rs. 18736124/- (Approx. 300000 USD). This is a substantial amount considering the annual funds available to the University for the maintenance and upkeep of all its buildings in the Campus. Hence, the University also needs to do further fund raising for the implementation of this plan and conservation of Gandhi Bhawan. The plan outlined following funding potential for its various planned works.

S. No.	CMP WORKS	FUNDING SOURCES		
		Local	National	International
1.	Landscaping – reviving the Pool	Panjab University with its annual resources and additional support	Ministry of Culture – Gandhi Heritage Sites Funding Ministry of HRD – UGC status for Heritage Campus	Getty Foundation (Keeping it Modern) for further monitoring for pool waterproofing, microclimate study and passive cooling
2.	Conservation of Exterior panels			
3.	Conservation of Interiors and Furniture			
4	Services including Air conditioning if required after microclimate monitoring			
5	Interpretation and Use proposals			
6	Risk Management - CCTV and Fire Fighting			
7	Archival drawings- conservation and storage		Ministry of Culture – National Archives scheme for digitisation and conservation	

Panjab University should target these specific national and international funds for the identified works while simultaneously taking initiatives to conserve the building interiors and exteriors with its own annual resources. It can also request support from UT Administration. Other sources of funding such as the Punjab University Alumni network may also be targeted.

8.3 Monitoring indicators

Following Monitoring parameters need to be observed by the Engineers and Architects of the Panjab University to ensure the health of all essential components of Gandhi Bhawan

I. Pool structure – To be emptied before monsoon and physical/structural health to be inspected for any probable defects/ settlements/ cracks etc. Appropriate steps to be taken accordingly to prepare the pool for receiving rainwater.
II. Water quality - Manual chlorination at a frequency of 2-3 times a week.
III. Exterior Panels - to be inspected on a quarterly basis for any signs of cracks/ exposed rebars/ loosening and other conditions as per glossary included in the condition assessment. Numbering of complete 3600 panels is done and each can be identified and checked as per its special number.
IV. Interiors, furniture and artwork – Interiors including furniture and artwork conditions should be inspected on a monthly basis for any wear and tear and appropriate measures to be undertaken as per policy guidelines in the CMP.
V. Interpretation and Use – After the installation of all signage and interpretation room as per CMP, monthly record of visitors and their response/feedback is essential to ensure the success or improvements required in this area. Gandhi Bhawan Chairperson should also chart out an annual calendar of outreach activities/events to be carried out in the building and keep a record of all such activities.
VI. Services – All services infrastructure for Gandhi Bhawan needs to be checked on a monthly basis or as per need basis for complete efficiency and functionality.
VII. Archival Material – The data logger readings in the compactor room for archival material to be taken on a monthly basis to check the humidity/temperature etc. of the room. The inspection of drawings should be carried out by paper conservator twice a year.

8.4 Phasing and Updating the plan

The CMP of Gandhi Bhawan needs to be a dynamic document and should be updated on an annual basis recording the works carried out every year as per plan and, to include any new aspects associated with conservation and management of the building.

List of Tables

List of Figures

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ANNEXURE **10.1**

ORAL HISTORIES & MEMORIES OF THE GANDHI BHAWAN:COMPENDIUM OF INTERVIEWS

Mr. Tarun Mathur, Son of Ar. B. P. Mathur

My father was from the very first batch of SPA. At that time, it was called the Delhi Polytechnic. He was earlier a part of the Chandigarh Capitol Project. Soon the PU project came up and I guess they decided to have a special team for PU. So, from 1958 onwards he was shifted to the PU project. Initially, he was working on the PU project while he was posted in the UT administration. But, later he was sent on deputation to Punjab University. His office was setup in the PU campus itself. He had his own independent staff and Mr. Jeanerette used to come once in a week or more to oversee and probably teach them the language of architecture.

The PU Construction Team

They had a very good team and Pierre Jeanerette was the one who lead the project. My father was working full time on this project. He had a very able structural & civil engineer Mr. Agya Ram by his side. This team of three dedicated professionals clicked together. If you take one out of the equation, we won't have gotten the same results we see today. My father's particular strengths were, the strong bold structural forms. If you see his buildings like the Student center or the Department of Correspondence Courses, they have a very bold structure. Other Architects in Chandigarh didn't have that advantage. They were all trained in Brick structures, Brick Masonry. For example, one can see the 2 storey or the 3 storey housings in Chandigarh. Beautiful examples of fine exposed brick work. I haven't seen any better work so far in my life. But, my father had a master in-house structural engineer, who helped him translate the modular into RCC. They used to have model studies for the distinctive roof designs. It's not possible to evolve a unique roof pattern without make models.

Pierre Jeanerette and B.P. Mathur

My father considered Mr. Jeanerette as a father figure. Mr. Jeanerette taught him Architecture in true sense. I remember my father once saying this to someone that, had he not worked so closely with Pierre Jeanerette, he wouldn't have the success he achieved.

Work Relationship with Contractors and Masons

In those days the contractors were different from the ones we have now. The stress was more on labor contractors. Mr. Agya Ram had his construction cell in the campus. They would buy the material and supply to the contractor. The final result did not depend much on the contractors, but the Foremen and the Masons. There was a very close rapport between the Foremen, the Masons and the Architects. I believe when they had to make spiral staircases, they would sit with the Masons and the Foremen, and discuss the shuttering to achieve the pattern. It was a very intensive collaboration, because spiral staircase is not something that you can draft on a two dimensional sheet, it's rather 3 dimensional. These masons helped them create distinctive elements like the sun breakers in PU. Lot of inputs and consultations were given by the Foremen and the Masons in order to make every detail practical.

About Gandhi Bhawan

Gandhi Bhawan is a monumental tribute to Mahatma Gandhi. He stood for purity and in Indian iconography lotus is the symbol of purity. So, this is the reason why this building was meant to be white in color.

Selection of Material

The choice of having exposed concrete for the buildings was may be made by Corbusier. Hats off to him, because the depth he had. Luckily the local sand of Ghagger river is a very good quality sand for exposed concrete, probably the best you can hope for. Whereas if you try to build a similar structure in Delhi, the Bhadarpur sand in Delhi is very course, doesn't give you that fine finish, it has a dull color. Example is the Hall of Nations and few others, they have much different results. So it's only particular to Chandigarh where this quality of sand is available for a good exposed concrete finish.

Work culture in PU Construction Office

We were staying in the PU Campus itself. My Father along with Mr. Agya Ram would go for morning walks. He would either sit there for hours or just visit the site and come back. There isn't a time frame for thinking process. He discussed the concepts with Mr. Agya Ram, the masons, and the foremen on the site and they in turn would come out with their ideas and suggestions. So, it was a process of evolution. They were a small team and we still have family relations with them. They even had tracers, draftsmen and senior draftsmen in the office, each one contributing a particular skill. One particular draftsmen I would like to mention was the son of Giani Ratan Singh(Model maker in UT office). The quality of drawings he produced was very fine. They were properly rendered and stenciled just like submission drawings.

About Pierre Jeanerette

He was not maintaining a studio for himself in the PU campus. He used to come to the office but, he didn't have a separate table as such. They would gather around a drafting table and discuss the drawings and details. There wasn't a formal hierarchy in the office, where each one has a different cabin or there is a designated meeting room. I think there was just my father's cabin and one drafting hall, that's all. May be there was one more room for the administration or office clerk etc. It clearly shows that Mr. Jeanerette was not hierarchy conscious. He used to come to the office after 5pm, so my father was held up even after working hours. Mr. Jeanerette used to apologize to my mother and say "sorry Madame", for holding back my father at the office till late hours.

He never spoke much English and neither he tried. I mean if someone has been living at some place new for fifteen years, he does pick up the local language but, he never felt the need. He was a recluse, I mean he would never speak out of turn. Mr. Jeanerette had employed some model makers privately also. They would come to his house on weekends and they would try to make furniture and boats for the lake. One particular boat I actually saw lying in his garage at his residence. I remember visiting his house a couple of times, it was a big house. Once we rang the bell, no one answered, we kept ringing the bell but, no one was answering. After about 10-15 minutes, my dad went to the backyard of the house and he saw Jeanerette sitting in the lawn. It was pitch dark, he was sitting all alone and probably having a

glass of whiskey. It was so dark but, I could make out some one holding a glass because of the reflection of fire flies around in the glass. Jeanerette was more into details, not so much into the form but the furniture, boats and all other small details. One can see his excellent railing designs as an example. So, I think with Corbusier also, his job was to make details.

Challenges faced during Construction on PU Buildings

India was such a poor country in those days, that it is hard to imagine for the present generation. One reason why they had exposed concrete was, because they couldn't afford anything better. Flooring was plain cement flooring, which was the cheapest one they could have. Budgets were a very big constraint. There is one story I was told, that Morarji Desai the then Finance Minister once visited PU campus and he was shown the Gandhi Bhawan. He asked for the reason of having such a big pool here. Why should we spend all the extra money. He asked my father if all this extra money be deducted from his salary. He was a Finance Minister, and the country was so poor that anything frivolous like a pool would have meant a lot of extra expense. But later he was explained the concept that, this building is like a Lotus and a lotus grows in a pond.

Ar. Jeet Malhotra

About Myself

I was born in Hafizabad, district Gujranwala in Pakistan. I am a son of a railway engineer. I passed my matriculation exams, even though i was not very good at reading and writing. I was good at drawing, so my brother in law supported me to become an artist. I started drawing caricature as i aspired to be a cartoonist, but my brother in law stopped me and asked me to do something else. Architecture was the field i had to get in-to. I did not even know the meaning of Architecture yet i appeared in an aptitude test in which I was asked to draw some sketches. I got selected for both arts and architecture. Eventually I joined the Delhi polytechnic, now known as SPA and that was the beginning of my architectural career.

My learning process

I learned more about architecture from engineers. Though Corbusier and Jeanerette were great but engineering taught me to respect water and save water. In my career, I worked in the Construction of Bhakra Dam, Rajasthan canal and many other Govt. projects for 38 years. All these projects were rich for my education. A part of me started loving architecture during my graduation and i almost became a headache for my professors, as i used to ask a lot of questions. I learned a lot from the site visits and drawings and the evolution of my learning took place through 3D Models. At a very young age in architecture i was put in the lap of Corbusier and Jeanerette. Their drawings were made in French and people did not understand it, so it was my responsibility to convert those drawings into models. Luckily we had very fine model makers in our office from whom i learnt art of model making. I was seated very near to Jeanerette's office and this office was a great laboratory for us to learn and make drawings of furniture and various other details. The first room in the office was for Corbusier, the second was Jeanerette's and the third was mine.

My role in Chandigarh project

Myself being a Punjabi and a refugee motivated me to do something for my people through this project. Even the administrators used to love me for my passion towards my work. When i joined the project, every Indian architect wanted to work in this project, but they were adamant towards working with Jeanerette due to language barrier, instead they wanted to work with the English people. But i was very keen on learning from the French Architects after i saw their paintings and drawings. I told Jeanerette that we could be great as a team because just like me he had sympathy for the poor women working on sites with children in their arms. He used to say "we were only two and you will have to work till late hours", but after observing my dedication he was pretty impressed. That was the time when i really started learning "architecture" from him. He was the one who taught me environment planning and architecture. How great and a humble soul he was. I think his contribution to this country is great and i congratulate DRONAH for finally celebrating his achievements. Yes, Corbusier was a great thinker and writer but nobody knew Jeanerette. He was an implementer, which is more difficult than envisioning.

Work process in Chandigarh

Mr. Jeanerette once asked me to go and meet the clients and try to know what they think about the building which they have occupied. He believed that the relationship between a client and the architect is very important in order to get feedback from the clients which was the real source of "Learning and Earning". With this feedback, we could rectify the errors in the design and educate our clients at the same time. While on the other hand Corbusier was arrogant towards his clients. He imposed his decisions on his clients and make people live with his design. This was a major difference between Jeanerette and Corbusier.

Jeanerette's principles in Gandhi Bhawan

Jeanerette came to India because he was highly impressed by Gandhi's philosophy. The clients wanted Jeanerette to design Gandhi Bhawan as per their vision but he had his own idea for this particular building. He got the idea from a "Bhambiri" (pin wheel) which children run around with or put on their bicycles as it spins with the wind. The three wings of Gandhi Bhawan were derived from the three principles of Gandhi i.e. "See no evil, Speak no evil and Listen no evil". Nobody can claim that Jeanerette took any help in designing this building. Though some people at their student age published Gandhi Bhawan as their own design due to which Jeanerette suffered a lot of humiliation, but he kept quiet. Instead he wanted to congratulate the people who did so, "This is his greatness".

Gandhi bhawan is a true symbol of Gandhian philosophy. The water generates a feeling of calm and quietness and the three rooms he created is a height of great space inside and outside. For me Gandhi Bhawan is a small & peaceful building yet a master piece of interior and exterior Architecture. It has a simplest form expressing the greatness of Gandhiji. It is a fusion between Gandhi and Jeanerette. I take my hat off and show you my grey hair and mark my words, "We need more Jeanette's and better Jeanerette's". I conclude this remark by saying "Truth is GOD". And so does the Indian philosophy says; "Satyam Shivam Sundaram" which means, God is truthful and beautiful. It makes me cry how much Jeanerette suffered while working on this project(with tears in his eyes)

Gandhi Bhawan is not an example of technology, rather it is an example of environmental saving. It means, how the simplicity of life can help both urban and rural people to be more productive without damaging the environment. Jeanerette for the first time used sandstone in all other buildings of the Panjab University but, in this building he used white pebbles and water for reflection, although he knew that water was scarce. He did not take himself for God and never believed that his building shouldn't ever be improved, rather he was open minded. Anything good to preserve this building can be incorporated in order to save this idea of Jeanerette and Gandhi. I request the authorities not to go against the spirit of simplicity this building has. Whether it is furniture which shall be preserved or any other technological advancement like loud speakers which can be avoided because the hall is designed with very good acoustics.

Jeanerette as an Inspiration

I think Jeanerette should be considered the future God father of all good Architects, Town & Country planners and Engineers in the world if we have to save this world. And GETTY can do a lot on this. For instance they can help to make more solar energy use in the villages of India. When Jeanerette was made the Chief Architect & Chief Town planner of Chandigarh by Nehru & Kairon, he requested them for funds to supply water in each village of undivided Punjab. By doing this, poor women could be saved from spending half of their lives to get water from far distances. This was the passion and concern of this great man. His request was agreed to immediately but, it could not be implemented.

Ar. S.K. Jattana

About myself

I joined the PU Architecture office in Sept. 1961 as a Senior Draftsman. As a senior draftsman, i was required to prepare the working drawings, not much of designing. During that time in 1961-62 the Gandhi Bhawan project was being handled by Mr. Rajinder Kumar, who was the Assistant Architect. He was in direct contact with Late Mr. Jeanerette, "The principle Architect of PU". The PU Architecture office was established with Mr. B.P. Mathur as the Head Architect. The concept & philosophy of Gandhi Bhawan's design was not known to me but, i got the opportunity of preparing the working drawings for the same.

About Gandhi Bhawan

Gandhi Bhawan is a unique building. It's architecture is typical and it immediately grabs your attention while entering the campus because it has also been placed strategically in the master plan. Definitely it gives you a feeling of a temple unlike any other educational building within the campus.

My Role in PU

After 5 years of my role as a draftsman in the office, I was promoted to the post of Assistant Architect in 1966. During that period, I was working on the PU library. In Sept. 1973, after Mr. B.P.Mathur, I took over as the head of the Department. PU Architecture Deptartment was a better place to work in, rather than the Chandigarh Administration, because we had freedom of design. This is how I grew as an architect and got deeply interested in the architectural details.

On PU Architecture

The basic philosophy of Framed Structures by Mr. Corbusier was followed in all the buildings of PU and the typical feature added was the stone cladding. But the Gandhi Bhawan has the cladding of marble chips, because it was meant to have a distinct character and of course the water body gives a floating effect to it, just like a lotus in the pond.

Built quality of Gandhi Bhawan

In concrete if things are done in a proper manner, buildings do have a long life. And "Gandhi Bhawan" has stood the test of time. But the cladding has started weathering out now, almost after 50 years. The credit of structural quality goes to the then XEN in PU Construction Dept. - "Late Er. Agya Ram". He was an extremely devoted person. He was the reason why, the construction quality at that time was very good.

On Pierre Jeanerette

Including the campus planning all the old buildings including Arts block, Science blocks, etc were designed by Mr. Jeanerette. Of course the construction was being monitored and interiors detailing was

being done under the charge of Mr. B.P.Mathur but, the basic concept of the whole campus was designed by Mr. Jeanerette. "This is his Creation".

Ar. R.L.Malhotra

My Association with Pierre Jeanerette

Throughout my professional career I was in touch with Mr. Jeanerette. He was my guide and a teacher. I remember that, I used to go out on hiking and other activities with him other than professional work. He didn't get married and even i was a bachelor at that time so, we had plenty of time after work. I started working in PU in 1958, I had just qualified and even my result was not out. I had come from Delhi to work in PU architecture office with a precise idea of learning something from the French architects.

My learning process

Jeanerette was my guide to architecture and he taught me that Architecture is not only a profession but it is much more than that. There wasn't much of conversation with Jeanerette, as he was not very fluent in English, neither was I in French. Conversation were mostly had on the drawing board because his way of conveying ideas was through drawings only. I and my other colleagues used to go on site with him and sometimes we used to feel like children knowing nothing but, he knew everything.

Design principles of Gandhi Bhawan

When the building was being designed, he used to tell us that, this building will be in contrast to rest of the buildings in PU. Gandhi Bhawan stands out from all other buildings not only because of the professional excellence of Jeanerette but also due to its entirely different character within Chandigarh. We asked him that, why this building should be different from all others and he told us that, he is doing it purposefully as an experiment with a totally different style of architecture. He took Gandhi Bhawan as a professional opportunity for himself in order to create a landmark known to the world.

Execution process of Gandhi Bhawan

One thing I learned in PU Architecture office was that the building design should be such that it is easy to construct. Rest all the buildings in Chandigarh were entirely in brick but, this building was made in a different material. I remember for its structure an engineer was appointed from Delhi but, I don't remember his name now. It was difficult for engineers to execute this building because the structure was different from the typical Chandigarh style of Architecture. Structure design technology at that time in India was at a beginning stage but, Jeanerette had a lot of experience which made it possible. Mr. B.P. Mathur was the head of the team and his professional level was fairly high. I have a lot of memories of him and I wish he lived longer. He was just 50 years old when he died. After Jeanerette was gone, Mr. B.P. Mathur looked after all the works in PU and the rest of us worked under him. He himself was a very good Architect.

Team work in PU with Jeanerette

It was a very congenial environment. We used to design a building and put it in front of the other teams for their feedback and this was applied for all the buildings. Jeanerette also included the clients in the design process. I worked with him for almost 12 years. He had a free hand and he listened to all other's ideas, while Corbusier used to do what he had in his mind.

Mr. P.C. Markanda

About Myself

I worked in PU for a very short period as an Engineer. Soon, I decided to switch to Law as a profession because there was neither increment nor promotion available. I have seen Gandhi Bhawan being constructed but, I was not the person in charge for the building. However, I have constructed a number of other buildings in the PU campus like the Science laboratory, arts college and hostels.

About Gandhi Bhawan

As far as I recall there were many changes made to the building during the construction process. Earlier it was meant to be in exposed brick but later it was decided to clad it with white marble chips. The university campus is dominated by the red Agra sandstone but, Gandhi Bhawan was meant to have a different character. The Sandstone and the panels on Gandhi Bhawan Facade were clad by brass clamps, without which the panels would not stay attached because there is no cohesion between the mortar and the stone. Half of it goes into the stone and the rest of it goes into the structural brick wall.

The Work process in Construction Office PU

The planning was done by Jeanerette but, the detailing was done by Mr. B.P. Mathur. Jeanerette divided the campus into three parts - academic, sports and residential. You won't find this kind of setup in any other university. The library was placed in such a manner that it was equidistant to arts block and science block and so was the student centre. Earlier the student centre was not thought of, It came later into the master plan. But, the central open ground "left intentionally by Jeanerette" was encroached with the alterations made in the master plan. Even after I left the PU, many other new blocks have been constructed in the open spaces between the blocks destroying the purpose of the spaces intentionally left.

Mahinder Raj, who was a renowned structural engineer asked Mr. P.L.Verma (the founder chief engineer of Chandigarh) to add one more floor to all of the arts blocks, all the hostels and all the science blocks in 1977. But, I strongly opposed this proposal. I also wrote to my predecessor "Mr. Agya Ram" and asked his opinion on the same, I even asked him whether I should quit my job, sticking with my decision. He immediately wrote back to me and asked me to stay strong with my decision. He too believed that, with the addition of another floor, there will be a settlement of foundations, because the columns were not designed for extra load due to limited budget constraints. So, I gained some confidence that my line of thinking is correct and I will not do it, rather I would quit. I, as an Engineer always wanted to translate the Architect's concept into action but, today you won't find that dedication amongst Engineers and even in the Architects. For example, if the Architect wanted sandstone cladding on his buildings, it was on the Engineer, how to put it on so that the Architect achieves his desired look. So, Mr. Agya Ram came up with the design pattern of the panels put on all the buildings in PU. He was a Gem that Panjab University was lucky to have. One must see the Spiral staircase of the science laboratory, it was the first of its kind in India. And I bet, you won't find anything like that built anywhere of that time when pre stressed concrete was unknown.

The contracting process

There was an allocation of funds for each project and the per square foot cost was known. Time was not a constraint in construction in those days and neither did the material prices went up in years, so we as contractors did not have escalation cost in our contracts. It was a through rate contract for all the buildings in Chandigarh and we built on common schedule of rates. The contractors for the Administration building and boys hostel No.2 was Om Prakash & Baldev Krishan. Boy's hostel No.1 was constructed by Satpal Singh and Boy's hostel 4 & 5 were constructed by Varyam Singh.

On Mr. Jeanerette

Mr. Jeanerette used to come to PU almost daily on his small car. There were very few cars in the city, so it was something to see in those days. Mr. P.L.Verma once told me that Chandigarh was initially designed to be a car free city but this proposal was not accepted by the Govt. officials.

Mr. Jeanerette was the planner and overall conceptualizer of the PU campus but, it was not possible for him to realize this concept without Mr. Mathur, Mr. Agya Ram and the entire team of Construction office. This was the working setup in the PU construction office. And Mr. Mathur along with Mr. Agya Ram used to work on details because they had a very good understanding. Mr. Jeanerette never interacted with the Engineer accept the Site inspection.

Mr. G.S.Tandon

My Background

I Obtained a Degree in Civil Engineering from Punjab College of Engineering and technology, Lahore in 1947 and joined Punjab PWD B&R as Assistant Engineer. During my service in PWD i also did my masters in Highway Engineering from Chandigarh Engineering College. During my 40 years of Government service I was lucky enough to get the opportunity to be a part of the prestigious Capitol complex project and many other important projects in north India.

About Chandigarh Capitol Project

The monumental and sculptural buildings like the high Court, Secretariat and Assembly were designed by Le Corbusier. The lines drawn on paper were given structural strength and constructed at site by departmental Engineers. these massive concrete buildings were being designed & constructed for the first time in India. As there were no I.S. codes or national codes, the departmental engineers adopted American and British codes of prectice in order to do soil investigation, design of structural elements like foundations, columns, beams, slabs and quality control procedures. These buildings have stood the test of time against adverse weather and even Earth quakes. The structural design of High Court was mainly done by Gulzar Singh, Secretariat was done by Mahender Raj Mehndirata and the Assembly building was done by me with the assistance of M.S.Chawla. In Dec 1961 even a technical paper was published about this project.

The construction Work

We had appointed four Architects from overseas but not a single structural engineer. Yes we engaged two good construction firms, one was Hindustan Construction Comapny and other was Gammons India. Most of the work was done by Hindustan Construction Company but, the Hyperbolic Shell was constructed by Gammon India Assembly. The works were carried out under the supervision of Ajit Singh, O.P.Kapoor and R.C.Singh for all three buildings. Secretariat Building was almost completed in 1952-53. First was the High Court Building, then Secretariat Building, then came the Assembly Building, it was in 1959 perhaps.

Material used & it's sourcing

The foreign Architects introduced the modular a concept of designing space as per the requirement of a 6ft tall man. As a result 9"X4" and 5"X3" bricks were found to be most suitable to become a modular unit and were adopted for all buildings. All the dimensions were the multiples of this modular brick. Strict quality control procedures were followed in all bricks kilns supplying bricks for the construction works in Chandigarh. The quality control was so strict that for buildings like M.L.A. hostel and flats in sector 3 & 4, every brick used in face work was physically tested for a ringing sound to ensure it was well burnt. Field Labs were set up for the quality control of cement, bricks and sand. Each batch of concrete was tested to comply with the designed compressive strength. We tried to make concrete matching M50.

ANNEXURE **10.2**

WORKSHOP PROCEEDINGS

Conservation Planning for Gandhi Bhawan, Panjab University under the "Keeping it Modern' Grant, 2015-16

Summary on
First Workshop Modernism in South Asia- Pierre Jeanneret's Gandhi Bhawan on 4th & 5th December 2015.

Prepared by:
Institute of Gandhian Studies, Panjab University
In association with DRONAH

Contents

1. Planning & Organisation of Workshop 1

International Workshop and Exhibition on "Modernism in South Asia: Pierre Jeanneret's Gandhi Bhawan"

Date: 4th & 5th December, 2015

Venue: The Museum of Fine Arts and Gandhi Bhawan, Panjab University, Chandigarh

Organizers: Panjab University in association with DRONAH

Agenda: Expert discussion and workshop on Modern Architecture in South Asia, its relationship with the International Modernist Movement and Current Status of Modern Buildings in India. An Exhibition on Modern Architecture planned which includes contemporary work of the 1950-60's in India and showcases various Modernist expressions throughout the country.

Target Participants: (50-60 in no.)

i. Experts and professionals on Modernism in India, such as architecture and art historians, conservation professionals
ii. Students pursuing architecture or art history as well as other interested individuals

Objectives

i. The first workshop is also intended to engage professionals and academics in a discourse on Modern Architecture in South Asia, with a specific focus on India.
ii. It is also intended to introduce the subject to a larger audience and raise awareness about the significance of twentieth century architecture.

Methodology:

Followed by a call for papers, posters and presentations as well as specific invitations to experts within the field, a detailed two day programme including exhibition and workshop has been developed.

The first workshop under this project titled *"Modernism in South Asia-PIERRE JEANNERET'S GANDHI BHAWAN"* has been conducted on 4th -5th December, 2015 and included an exhibition, release of a monograph of Pierre Jeanneret's works on the University campus. Presentations and interactive discussions has been organized during the workshop.

2. Workshop Proceedings

Day 1: Inauguration of Exhibition on **"Modernism in South Asia"** at The Museum of fine Arts, Panjab University.

The exhibition was organized by DRONAH (Development and Research organisation for Nature, Arts and Heritage) and Panjab University as part of the **"conservation planning for the Gandhi Bhawan"** project phase 1 – *Documentation, Site Surveys and Background Research and Establishing Significance.*

This exhibition was launched by Prof Arun K Grover, Vice Chancellor, Panjab University at the 48th death anniversary of Pierre Jeanneret on December 4, 2015. The exhibition is a prelude to the series of exhibits that will be developed during the course of research and conservation planning for the Gandhi Bhawan under the 'Keeping it Modern' Grant, Getty Foundation, USA.

The event was hosted by Dr. Sangeeta Bagga, Associate Professor, CCA. She welcomed all the present members – Vice Chancellor, Registrar Pu, Professor Maristella Casciato, Professor Kiran Joshi, Dr. Shikha Jain, Director DRONAH, Dr. Rohit Jigyasu president ICOMOS India and Risk Management Consultant, Dr. Manish Sharma, Chairperson Gandhian Peace Studies, PU. Together the distinguished guests launched the monograph on Pierre Jeanneret's works in Panjab University prepared by the project team (DRONAH & Panjab University).

The Vice Chancellor highlighted university's achievement and appreciated efforts made for the workshop and exhibition. Remarks for the First Getty Grant Workshop by Col. GS Chadha, Registrar PU were made on Conservation Grant for the Gandhi Bhawan, PU awarded by the Getty Foundation, USA.

After the inauguration of exhibition Professor Kiran Joshi introduced Maristella Casciato, Curator, Pierre Jeanneret Archive Canadian Center for Architecture, CANADA.

The keynote lecture on "**Pierre Jeanneret**: **The Architect's Craft"** was presented by Professor Maristella Casciato. She highlighted the facts of the life of Pierre Jeanneret and his works in Chandigarh.

The objective of the lecture was to highlight the contribution of Pierre Jeanneret, together with a group of collaborators among whom were BP Mathur, Shri Agya Ram, Ar. Jatana and others to the planning and building of the Punjab University (PU) campus, with a focus on its core building, namely the Gandhi Bhawan. Completed in 1962 the Gandhi Bhawan was designed to stand on a deck in the middle of a water pool, which could reflect its sculptural volumes shaped by irregular geometries. In the first half of the 1960s the planning of the PU in Chandigarh sector 14 marked

the climax of an era of growth and modernization that characterized the “governing by design” policy of Prime Minister Nehru.
The Panjab University project embodies the quintessential of the political and cultural significance of the post-colonial age, in which culture and society embraced each other in order to allow individuals’ to embrace the values of the nation state program. Under this vision high education and the construction of new pedagogical infrastructures, such as universities were regarded as projects of national relevance.

The lecture focused on three aspects that were pivotal in Pierre Jeanneret’s project:

1. The campus as “a city within the city”, a learning citadel made of building, landscape, students and professor. A walk through the campus allows appreciating the synergy between architecture and landscape, a microcosm that blends perfectly with the modernity of which Chandigarh was expression. This was made possible thanks to a balanced hierarchy among functions and scale of the edifices and through an architectural idiom that combines linguistic sobriety and solemnity. The architecture of the campus bears Pierre Jeanneret’s signature in the majority of the administrative and teaching premises as well as in numerous dormitories.

2. The Gandhi Bhawan’s conceptual origin and the connection with the concept of the “ineffable space”, at the time elaborated by Le Corbusier, as key interpretative issue. Reading through the words written by Pierre Jeanneret the “ineffable space” represented a phenomenon to connected space, opening of volumes, light. The “ineffable space” is the result of a process of multiple resonances: place, object, sensibility, truth, and acoustic. A deeper understanding of the space/acoustic relationship would clarify how Pierre Jeanneret developed his own personal approach to Gandhian thoughts as embodied in the building.

3. The architecture of the PU as expression of the concept of modern monumentality raised after the end of World Word II. Buildings are landmarks created as icons for human ideals, aims, and actions. They are intended to outlive the period which originated them, and constitute a heritage for future generations. Built edifices as well as projects that remained unbuilt satisfy the eternal demand of the people for translation of their collective force into symbols. The red color of the facades dominates the campus landscape. Bricks are used in multiple variations of pose and weaving, and more relevantly the red sandstones are applied in plates as coating material. This was an eloquent choice. With the introduction of a nobler material Pierre Jeanneret suggested to build a parallel with the tradition of Mughal red sandstone architecture, and therefore conferred upon the campus buildings the value of modern monuments.

Day 2: The day started with a walking tour of Pierre Jeanneret's work within Panjab University campus guided by Dr. Sangeeta Bagga. The tour focused on the prominent buildings designed by Pierre Jeanneret such as the Gandhi Bhawan, the Fine Arts Museum, the University Library, the Administration Building, Students Centre, Health Centre and peon's housing and other housing etc. Professor Casciato also accompanied the tour.

This was followed by the workshop comprising three sessions and a Pecha Kucha at the end. It was positioned towards spreading awareness as well as sensitivity towards twentieth century modern heritage with special reference to Chandigarh and the work of Pierre Jeanneret.

Session 1- Gandhi Bhawan – Overview of Conservation Planning

The first session was chaired by Dr. Shikha Jain, Director of DRONAH. She mentioned that the prestigious Conservation Planning grant has been awarded to the Gandhi Bhawan under the 'Keeping It Modern', a major philanthropic initiative of Getty Foundation, USA. The grant supports the conservation and preservation of modern architectural ensembles.

She stated that the grant awarded through a juried competition process, is focused on the creation of conservation management plans, testing and analysis of modern materials that guide long-term maintenance and conservation policies. The Gandhi Bhawan is the first recipient of this grant in Chandigarh and one of the 14 international architectural masterpieces awarded from among 40 shortlisted. She introduced the phases of this project and the team involved.

The session further proceeded with the presentations made by Dr. Rohit Jigyasu, President ICOMOS, India. The presentation was focused on "*Risk Management Plan for Gandhi Bhawan, tools and methodology for risk preparedness and management strategies"*. He presented few examples of the sites which are facing challenges of disaster across the world. He mentioned that the risk assessment and preparation of the risk management plan for the site along with feedback for required technical drawings such as emergency and evacuation plan will be provided at further stages of the project.

The session continued with the presentations made by Vanicka Arora & Bhawna Dandona (DRONAH) on *"Design and Construction History of Gandhi Bhawan and methodologies for Conservation"*

The presenters briefly described their findings on the conceptual development, design and construction processes behind Gandhi Bhawan as part of the 1st Phase of Conservation Planning

for the Gandhi Bhawan under the Getty Foundation Grant. Positioning of Gandhi Bhawan in the wider framework of modern heritage in India and the World discussed along with the significance of the unique form and materiality of the structure as a counterpoint to the other buildings within the Panjab University.

They presented initial research into the usage and repairs of the building which reveals specific challenges by the building's design and structure. Additionally, the possibility of using new approaches towards developing material conservation strategies and integrating them into Building Information Management Systems will be explored through the case of Gandhi Bhawan.

The interview with Ar. Jeet Malhotra on his experiences of working with Pierre Jeanneret was also screened during the presentation of Vanicka Arora.

Session 2- Modernism in South Asia- the Indian Experience

The Second session was chaired by Maristella Casciato, Professor, University of Bologna and Co-Curator Pierre Jeanneret Archive, CCA, Montreal.

The first presentation "Encounters with India's Modern Heritage and the Case of Le Corbusier's Chandigarh" was made by Professor Kiran Joshi. The presentation was an attempt to position the iconic historic core of the India's Post-Independence city of Chandigarh in the complex matrix of the nation's Modern Heritage. Beginning with a brief overview of the diverse sources and processes of Indian Modernity, the first half of the presentation described and evaluated a few illustrative examples from various parts of India, thus establishing the context against which Chandigarh was created and against which its cultural values must be judged.

The second half was focused on understanding the cultural values embedded in Chandigarh as also the role of various players, including Le Corbusier and Pierre Jeanneret, in the making of the city and its key components.

The second presentation was made by Professor Miki Desai, CEPT Ahmedabad, on *"Modern Architecture in South Asia with a Focus on Ahmedabad".* He expressed that the colonial experiences of most South Asian countries connected them to global modernization that promoted themes of science, technology and rational thinking. The built environment in India was also affected through the various phases of the Modern Movement. Deliberate attempts to exert an Indian identity began primarily with the growth of Indian nationalism under British rule, attempts which had to combat imperial ideas, both political and architectural, as well as international movements in architecture.

The presentation concentrated on the ideological conflicts and accommodations that were involved as India went through the journey of embracing modernism during the 20th century. While being concerned with the iconography of the signs and symbols of a culture, several issues such as universalism and regionalism, modernism and revivalism, the impact of international master architects, etc. were explored.

The presentation also examined the transformation of the aesthetic styles and the overall impact of buildings on the modern urban landscape. Modernity has a way of manifesting itself within the diverse cultural, contextual and ideological realities. Modernism is variously adopted, adapted and resisted by the postcolonial architects of India as their collective confidence grows. It is obvious that in the globalized phase, post-1990s, the search for an Indian identity gets rather fragmented and takes multiple directions through cultural transfers and localization.

Within the context given above, the presentation focused on the evolution of modernist architecture in the city of Ahmedabad and its recent developments. Known as the Mecca of Indian architecture, Ahmedabad boasts of having edifices designed by Le Corbusier and Louis Kahn as well as numerous iconic buildings by Indian masters such as Kanvinde, Correa and B V Doshi. The inspired younger generation schooled in these traditions has also produced architecture and urban design examples that demonstrate the adherence and careful divergence in modernist architecture. The presentation aimed to analyse the continuity and modifications reflected in architectural thought processes.

Session 3- Pierre Jeanneret in Chandigarh

Session 3 was chaired by Lt. Col. Inderjit Bakshi, Director, Chitkara University. He introduced Dr. Sangeeta Bagga, Associate Professor, CCA and Dr. Manish Sharma, Chairperson, Department of Gandhian & Peace Studies.

"Pierre Jeanneret and birth of a Campus- the Panjab University"by: Dr. Sangeeta Bagga gave the first presentation in session 3. She stated that the educational campuses represent the backbone of a city's cultural resource and the citizens draw their inspiration from such institutions that serve as their alma mater and much more. Life on the campus and its memories serve a function-- to inspire and bestow upon every student that passes through its portals caskets of knowledge and the courage to don wings of fire and a desire to change the world.

Chandigarh was envisioned as a utopia , a harbinger of change signifying the promise of freedom, and within it was seeded a microcosm- the Panjab University that travelled from Lahore to Shimla, and its final destination—Chandigarh. A decision to consolidate was taken by the

university senate in 1954 and land was purchased in sector 14 towards the north-western edge of the city bordering the Patiali Ki Rao and together with an area to the west it covered about 306 acres. The Masterplan was laid out by JK Choudhury, consulting architect to the Punjab Government, who also designed the college of Chemical Engineering and Technology. In 1958, with the establishment of the Architect's office, it finally became the responsibility and passion piece of Pierre Jeanneret, and Bhanu Pratap Mathur to develop its urban forms and matrix. The influence of the 'Chandigarh style' developed by Pierre , Maxwell Fry and Jane Beverley Drew for the city is evident in the built forms, scaled and humane spaces and climate responsive elements which lend playfulness and purpose to the ensembles of the city's educational armature.

The presentation documented the development of the Panjab University Campus, amidst the challenges of dealing with a harsh climate, indigenous techniques of construction, a shoestring budget and most importantly the search for a modernist expression to fulfill the aspirations of the displaced population in an aftermath of partition.

The second paper titled *"Gandhi's philosophy and Gandhi's Institutions",* was presented by: Dr. Manish Sharma. He stated that the nation's past traditions, moral and spiritual training has occupied a prominent place in Panjab University's programme of education. The need for emphasizing such training has greatly increased recently on account of the rapid multiplication of material comforts and industrialization. In the planning of this University, therefore, attention has been given to education in ethical and spiritual values. He reiterated that no person in recent times has stood more courageously for such highest values that *Mahatma Gandhi* advocated. Tracing the history of the Gandhi Bhawan he said that the Gandhi Smarak Nidhi sponsored a scheme to set up Gandhi Study Circles in different parts of the country to make available Gandhian Literature and to hold study classes and discussions on the life and works of Mahatma Gandhi. In 1960, a proposal was made by the Nidhi to the University Grants Commission that Gandhi Bhavans should be established in all the Universities "with the object of promoting the study of Gandhian ideals and his way of life". The Commission accepted the proposal and allowed Gandhi Smarak Nidhi to approach various universities, in consultation with the Commission, to establish such 'Bhavans' on the understanding that the "University Grants Commission would make a matching grant, not exceeding rs. 50,000/- in each case". After further consultation with the Nidhi, the Commission raised the amount of financial aid to rs. One lakh, and decided that, in the first phase, Gandhi Bhavans should be constructed in nine Universities of India. The Panjab University was one of them. For the construction of the building of Gandhi Bhavan on the University Campus at Chandigarh, Gandhi Smarak Nidhi and the University Grants Commission contributed a sum of rupees one lakh each, while another lakh of rupees was given by the Punjab Government.

He mentioned that at the main entrance to the Gandhi Bhawan, one finds the words, "Truth is God", the main theme of Gandhian Philosophy. He further remarked that in 1965, a regular Department of Gandhian Philosophy was started and initially one year's Certificate Course in

Gandhian Philosophy was instituted for imparting instruction in the social, political and economic philosophy of Gandhi.

Pecha Kucha Session

This session was chaired by Maristella Casciato and the presentations offered a wide range of perspectives on the theme of Modernism in South Asia. Four presentations at the Pecha Kucha were diverse and revealed various aspects of modernity and its arrival in India.

Dr. Jyoti Pandey, Professor DCRUST, Murthal made a presentation titled Modernity; Princely India and Built Heritage. The colonial state in the Indian Subcontinent pursued the modernist agenda vigorously in the post uprising years. Princely India championed the cause of progress and development with equal enthusiasm in all domains of human endeavor including the built environment. Indian rulers commissioned urban improvement schemes as well as patronized an array of novel built form types inspired by metropolitan archetypes that included railway stations, museums, libraries, town halls, schools, colleges, hospitals and parks among others. A survey was undertaken in 1912 by the British government's Archaeological Survey of India to identify types of modern Indian buildings and the craftsmen employed in their creation. Confined largely to the northern part of the country and focusing on Delhi, United Provinces and states of Rajputana, the survey included residences; courts; shops; mausoleums; dharamshalas; temples and mosques. A large part of this corpus was located in the princely states where modern Indian princes, whose credentials as aspiring progressive men were never in doubt, accepted modernity in ways that were multi-layered, fragmented and marked by acceptance, adaptation and even rejection of the western ideal. This is amply demonstrated by the case of Maharaja Jagatjit Singh Jee of Kapurthala State whose avowed admiration for French culture led to the production of a rather unique architectural legacy that continues to survive in Kapurthala city. Displaying an affinity for modernity in his building enterprise, that included both private and public buildings, one particular project stands out on account of the demonstration of a feisty spirit of internationalism. The Maharaja was a Sikh ruler who built a Jami Masjid (Friday Mosque) for his Muslim subjects in Kapurthala city. Eschewing the Mughal archetype, he drew on Marrakech's 12th century Qutubiya Mosque as well as the Parisian Grand Central Mosque as prototypes; engaged the services of a Paris based French architect and hired a Hindu supervisor who oversaw its construction. Kapurthala's Jami Masjid, popularly called the Moorish Mosque, was consecrated in a grand ceremony held on March 14, 1930. Today, the Jami Mosque is under the care of Punjab Government's Department of Archaeology but has little worth as modern heritage and is in need of an appropriate intervention to be mainstreamed into the city's urban life.

The second presentation was by Niyati Jigyasu, Professor, Chitkara, University on "Modernization Initiatives in the 20th century Sayajirao Gaekwad, Baroda State". The paper underscored that

Modernization is an attitude, based on the perception that the change away from the past is needed in order to make a better future. The modernization process measured in terms of industrialization and urbanization was initiated in the nineteenth century. Though its seeds were sown in Europe, and spread all over, the regional outcomes were diverse. The Indian sub-continent was largely under the influence of the British during this period and was experiencing significant political, social and cultural changes which lead to architectural innovations in many regions. Although these were influenced by the Colonial rule, the Colonial architecture did not simply replace the local architectural character of the region.

Although the British ruled most of India, there were a number of small states that were independent and were ruled by local princes. Some of the princes, their ministers and at times the British residents were progressive in their approach and would encourage various developmental reforms in their territories. These were the people who became the agents of modernization and consequently determined the architecture of the period.

“Sayajirao Gaekwad” and his reformist agenda led to some significant early 'modern' architectural works in his the Baroda state. He was updated on the contemporary innovations and possibilities in the world in the form of social, political and technological advancements. He carried out several extensive foreign tours which led to study of the economic, social, political conditions and administrative policies of the countries he visited and implementation of similar ideology wherever applicable to local conditions. His keen vision to invite best possible talent and expertise brought Architects Major Charles Mant and Robert Fellowes Chisholm, sanitation expert Baldwin Latham, landscape designers William Godring and librarian Borden to his state. The renowned Town planner Patrick Geddes was also one of the many experts who had a direct impact on the urban interventions and transformation brought about in the city. The presentation brought forth three of the most important buildings which can be considered as landmarks in the early 20th century including the Maharaja Sayajirao University , originally The Baroda College, Central Library and the central jail Central jail.

The third presentation by Arpita Dayal, Assistant Professor, Department of Architecture, School of Planning and Architecture, New Delhi was titled *“A phenomenological understanding of Mill Owners Building, Ahmedabad, 1954”.*

Modernism, through the multitude of viewpoints that define it, encompasses a philosophical and cultural transformation that has a subtle but discernible reference to its context. Perhaps this ironical ideology can be deciphered better if we look at contextual modernism as a mode of thinking that can get translated into an architectural experience of a place. First of the four completed commissions of Le Corbusier in Ahmedabad, the Mill Owners Association building constructed in 1954 is not just a physical manifestation of his answer for modern Indian

architecture but can also be appreciated for great experiential qualities that are a result of its spatial order.

Evaluated through the lens of phenomenological readings, the built space of Mill Owners is a good case study for appreciating visual and perceptual power of architecture. Honest expression of materials combined with striking resolution of opposites and a subtle reference to the local culture and climate lends a largely sensual experience where the visitor interacts with each element of the composition and perceives it in his own way. The ramp entry, the dreamy passages using strengths of pause and movement, framed views of the river from each floor, a sculptural interplay of static-dynamic, solid-void, light-dark and various colors, juxtaposition and articulation of architectural elements in space creates an experience that is beyond tangible, but rather abstract between observed and perceived.

The fourth presentation was by Thomas Oommen, Assistant Professor, Ansal University, Gurgaon, presented the *"MODERNISM FROM THE MARGINS" The peripheral modernisms of Trivandrum, India*

The talk questioned the historical narrative and experience of post-independence Indian modernism from the marginal location of Trivandrum. A small town in the southern state of Kerala, Trivandrum is a location that is outside the popular histories and geographies of Indian modernism.

The talk consisted two parts. Firstly, it draws on the author's experience of leading a monthly modern architecture heritage walk in Trivandrum (organized by the Indian Institute of Architects Trivandrum Centre) as a case study in exploring how architectural modernism of the early independence years is viewed, understood and experienced locally in small towns in India. It explored reasons why local works of modernism do not receive the status of cultural heritage enjoyed by traditional buildings despite being the 'official' architectural style of a newly independent India. The speaker attempted to throw light on how during the many modern architecture heritage walks conducted, it was the retelling of the post-independence story as "little narratives" of local and state architectural histories that turned out to be critical in engaging a public audience.

In the second part of the talk, the speaker problematized the writing of Indian modern architectural history as excluding the experience and understanding of modernism from secondary urban centers like Trivandrum. Further, he made the claim that the existing historiography of Indian modernism is biased both temporally and spatially within the country

closely following the problematic notion of “first in the west and then the rest” global model of modernism.

The speaker went on to argue that this framework of viewing modernity and modernism as a phenomenon of 'diffusion' starting from the urban centers of Delhi - Mumbai – Ahmedabad – Chandigarh and from the work of 'masters' has to be overcome, because most of it fails to hold up to empirical scrutiny. This is not only to conserve a rich layer of parallel ‘modernisms’ across the country, but also to reorient modernism's influence on architectural practice today. The speaker's claim is that given the phenomenal economic and demographic growth of small towns in India, a renewed engagement with their local histories of modernism is vital.

Image 1 Prof. Arun K. Grover, Vice Chancellor, P.U. and Maristella Casciato Curator, Pierre Jeanneret Archive Canadian Center for Architecture, CANADA inaugurating the exhibition.

Image 1 Col. GS Chadha, Registrar PU lighting the candles on Inauguration of Exhibition

Image 3 Guests launched the monograph on Pierre Jeanneret’s works

Image 4. Exhibition on “Modernism in South Asia” at The Museum of fine Arts

Image 5. Series of Presentation were made by presenters at Gandhi Bhawan.

Photographs of First Workshop & Exhibition on Modernism in South Asia- Pierre Jeanneret’s Gandhi Bhawan on 4th & 5th December 2015

3. Theme and Content of Exhibition

Gallery 1: Modernism and Modern Heritage

The Modern Movement across the world can be traced across a vast spread of period between the beginnings of the industrial age in the west to the colonial and post-colonial contexts in Asia and other regions. The regional variations and adaptations of this movement in each area and country contributed to a range of architectural idioms and new vocabularies. Modern architecture in India is marked through a Nation building process reflected in the design of Chandigarh along with innovative designs for educational and cultural institution as well as residential design. This gallery exhibits few of the masterpieces of modern institutions in India which are significant to be categorised under Modern Heritage of India

Gallery 2: Panjab University and Pierre Jeanneret

While Jeanneret's primary purpose in 15 years of his stay in Chandigarh was to execute the vision of his cousin Le Corbusier, his own evolution as an architect conversant with indigenous solutions was showcased in a range of planning and architectural works in Chandigarh and other towns. Panjab University stands as an exemplar of Pierre Jeanneret's expression in modern campus planning while simultaneously addressing the dictates of a harsh climate, a shoestring budget and near absence of mechanized means of construction.

Gallery 3: Documenting Gandhi Bhawan

Gandhi Bhawan is an iconic sculptural masterpiece of a building designed by Pierre Jeanneret at the peak of his professional practice. This gallery presents some of the initial documentation work undertaken for the Gandhi Bhawan.

4. Annexure: List of Participants

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Conservation Planning for Gandhi Bhawan, Panjab University under the "Keeping it Modern' Grant, 2015-16

Draft Workshop Proceedings of
Second International Workshop and Exhibition on
"Conservation of Cement Concrete and Modern Heritage in India" on 28th & 29th April 2016

Prepared by:
Institute of Gandhian Studies, Panjab University
In association with DRONAH & IIT Madras

Contents

1. Planning & Organisation of Workshop 2

International Workshop and Exhibition on "Conservation of Cement Concrete and Modern Heritage in India"

Date: 28th & 29th April, 2016

Organizers: Panjab University in association with DRONAH and IIT Madras

Agenda: Expert discussion, exhibition and workshop on Cement Concrete as a building Material, its issues related with conservation of heritage structures built within the twentieth century, testing and conservation methodologies. The practical demonstrations and some field exercises has been included along with site visits within Chandigarh so as to thoroughly demonstrate the issues presented by various structures contemporary to Gandhi Bhawan as well as investigate the causes for their occurrence.

Target Participants: (50-70 in no.)

- Experts and Professionals on Structural Conservation and Materials Conservation, dealing specifically with cement concrete, both nationally as well as internationally
- Conservation professionals, students and academics
- Site engineers and architects involved with upkeep and maintenance of such structures
- The Exhibition and site visits was intended for a larger audience as an awareness generation mechanism at this stage

Objectives

- The second workshop and training was intended as a capacity building exercise as well as an awareness generation exercise
- The workshop targeted the conservation professionals within the country who are currently ill equipped generally to handle conservation of twentieth century structures
- The workshop also highlighted issues of maintenance and upkeep to staff and management of not only the University but also other sites contemporary to the Gandhi Bhawan

Methodology:

IIT Madras as the leading expert in this area identified experts from all over the world to engage in the workshop as well as work out a detailed methodology for the programme. Experts presented case studies, practical demonstrations and help assess issues on the site over a period or 2 days.

2. Workshop Proceedings

Day 1: Inauguration of Exhibition on **"Conservation of Cement Concrete and Modern Heritage in India"**

The exhibition was organized by DRONAH (Development and Research organisation for Nature, Arts and Heritage), Panjab University and IIT Madras as part of the **"conservation planning for the Gandhi Bhawan"** project phase 2**–** *Assessment of physical condition and materials studies, identification of threats, issues of services, site management.*

This exhibition was launched by Prof Arun K Grover, Vice Chancellor, Panjab University on April 28, 2016. The exhibition is a prelude to the series of exhibits that has been developed during the course of research and conservation planning for the Gandhi Bhawan under the 'Keeping it Modern' Grant, Getty Foundation, USA.

The event was hosted by Dr. Sangeeta Bagga, Associate Professor, CCA. She welcomed all the present members included Vice Chancellor Arun K Grover, Registrar Col G.S. Chadha, Panjab university, Professor Paul Gaudette (Principal at Wiss, Janney, Elstner Associates Inc), Professor Kiran Joshi, Dr. Shikha Jain (Director DRONAH), Dr. Rohit Jigyasu president ICOMOS India and Risk Management Consultant, Dr. Manish Sharma, Chairperson Gandhian Peace Studies, PU.

The Vice Chancellor highlighted university's achievement and appreciated efforts made for the workshop and exhibition. Remarks for the Second Getty Grant Workshop by Col. GS Chadha, Registrar P.U. were made on Conservation Grant for the Gandhi Bhawan, PU awarded by the Getty Foundation, USA.

Session 1: Campus Planning & Architectural Design of Buildings in Panjab University.

After the inauguration of exhibition Dr. SS Bhatti, *former principal of Chandigarh collage of Architecture* chaired the Session 1 and introduced Architect Harpreet Singh & Architect P.R. Luthra (*Advisor, Architecture Department, PU)* for their presentations.

Their presentation covered the introduction, brief history, architectural design elements / character of Panjab University buildings, in general, the application of these in the buildings designed by its Architect office team. It further explained that the design and philosophy of four nos. Grade –I Heritage buildings, recently designated so by the expert committee of Chandigarh Administration. The futuristic requirements of Panjab University shall also be briefly taken up in the same.

Furthermore, Engineer R. K. Rai gave the presentation on *Maintenance Regime for Campus and Architectural Buildings of Panjab University with focus on works done in Gandhi Bhawan*. The presentation highlighted the maintenance practices, strategies and mechanisms adopted in the heritage buildings and recent projects of the campus in view of the growing awareness to the maintenance and management of building stock and heritage ensembles.

Session – 2: Gandhi Bhawan Condition Assessment

This session was chaired by Architect P.R. Luthra, former chief architect Panjab University and it was followed by five presentations by the team of IIT Madras & DRONAH.

Dr. Manu Santhanan & Dr. Arun Menon from IIT Madras presented Material testing and Sampling Results for Gandhi Bhawan. The presentation covered the basic principles of non-destructive assessment of concrete and masonry structures. A brief discussion of the physics of the technique was followed by the applications and limitations. The second part of the presentation dealt with the non-destructive assessment of Gandhi Bhawan that was carried out recently. This included the analyses from visual assessment of the exterior cladding, Infra-red (IR) imaging for mapping the structural system of the building, use of Ground Penetrating Radar (GPR) for studying structural details of the panel, and the investigation of the roof by IR imaging. Further, the assessment of the mortar used for fixing the cladding panels (in the laboratory) will also be described.

Ms. Vanicka Arora & Ms. Bhawana Dandona presented their work on Gandhi Bhawan.
Part 1- Condition Mapping: Approach, Methodology & Part 2 - Condition Assessment: Identifying Patterns, causes and exploring possible remedies.

Their presentation highlighted the facts that Gandhi Bhawan built in 1962, by Pierre Jeanneret, is an iconic Modern structure of the 20th century India. The Gandhi Bhawan building has remained largely intact despite some alterations in the past to keep up with the changing needs of the building. Having completed 54 years, the building does show some signs of distress. The team from DRONAH has been investigating and assessing its current conditions, which have been recorded on drawings created by laser scanning.

The first part of presentation addressed the approaches and methodology adopted for assessing conditions of various exterior and interior elements of Gandhi Bhawan. She mentioned that a number of techniques have been adopted including visual and mechanical surveys to identify the issues. Several findings are still being investigated in detail, and will need to be linked with the scientific testing that is being carried out by IIT Madras. The survey is also being supported by archival drawings and documentation, including the original specifications approved for the building.

The types of conditions observed have been discussed in the prsentation. The survey has revealed some patterns which help in understanding the possible causes of decay as well as help in extrapolation how the building might behave in future. These patterns along with some current conservation techniques for modern materials have been discussed in detail. An overview of these techniques, an understanding of probable causes and current conditions will help in recommending treatments for Gandhi Bhawan. Through this exercise an attempt is being made simultaneously to explore newer technologies for mapping conditions for better accuracy as well as link it to the assessment being undertaken by the other experts in the team to ensure that the approaches to Gandhi Bhawan remain streamlined.

Dr. Suchandra Bardhan, Head of the Department of Architecture, Jadavpur University, Kolkata presented the Condition Assessment of the Landscape Environs and Critical evaluation of the Gandhi Bhawan. The methodology included appropriate scoping of the studies and understanding the landscape elements of the core site as well as its surroundings in the context of Gandhi Bhawan's unique historical, symbolical & physical setting. She told that the information for condition assessment was collected through site/building plans, archival photographs, visual inspection and inputs from engineering departments of Panjab University in charge of its maintenance. She presented the physical and environmental conditions of the site covering all components of the built and natural landscape, particularly the tank structure as well as its related landscape services.

Dr. Rohit Jigyasu, International Expert, Risk Assessment, presented the methodology for Integrated Risk Assessment of Gandhi Bhawan. The presentation highlighted the methodology for undertaking integrated risk assessment of Gandhi Bhawan by identifying not only catastrophic hazards such as earthquakes and fires but also slow and progressive hazards such as pollution, corrosion and humidity. It elaborated on the key steps needed to collect data on hazards and vulnerabilities and their application to compare risk levels through analysis of potential impact on the safety of the people as well as heritage values.

Dr.Shikha Jain, director, DRONAH presented the Status of Conservation Planning for Gandhi Bhawan. She told that the conservation planning of Gandhi Bhawan under the 'Keeping it Modern' Getty Foundation Grant is targeted to address its material deterioration, long term maintenance and appropriate use of interior spaces with an aim to establish a benchmark initiative for modern conservation in India. It is intended that this interdisciplinary conservation approach for Gandhi Bhawan will subsequently guide the Implementation works on site.

The presentation covered an overview of the 5 phases envisaged in conservation planning of Gandhi Bhawan along with a summary of recommendations that emerge from first two completed phases. She said that the outcome of first two phases of documentation and assessment will be the key guiding factors that determine future conservation action and strategies for Gandhi Bhawan.

Day 2: The day started with keynote lecture on **Conserving Modern Concrete: Challenges and Approaches** presented by **Paul Gaudette .**

Paul Gaudette is a Principal with Wiss, Janney, Elstner Associates, Inc., in Chicago, Illinois, USA, specializing in the investigation, repair, and conservation of modern historic concrete. Representative projects include the Salk Institute for Biological Studies (Louis Kahn); Baha'i House of Worship and the Edison Memorial (John J. Earley); Morse and Stiles Colleges at Yale University (Eero Saarinen); Promontory Apartments (Mies van der Rohe); Wright Brothers Memorial Visitor Center (Richard Neutra); and Heritage Park Plaza (Lawrence Halprin). Mr. Gaudette is a Fellow of the American Concrete Institute (ACI) and the Association for Preservation Technology International (APT). He has led several ACI committees, taught courses on repair of historic concrete in the United States and internationally, and authored numerous publications on the repair of modern and historic concrete including National Park Service Preservation Brief 15: Preservation of Historic Concrete. Mr. Gaudette was also an invited participant in the Getty Conservation Institute Colloquium on Conserving Modern Heritage (2013), and the International Forum on Conservation and Adaptive Reuse of Reinforced Concrete Buildings (2014).

The presentation addressed the particular philosophical and technical challenges inherent in the conservation of modern and historical concrete, ranging from understanding character-defining features such as exposed aggregate and board-form finishes, to developing a protocol for trial repairs, to designing appropriate conservation and repair measures. Standards and guidelines for appropriate conservation and repair approaches have been discussed. A methodology for assessment, repair, and implementation of conservation measures has been presented, illustrated by several examples from the speaker's experience that involved different technical challenges. Examples included the Salk Institute in La Jolla, California (Louis Kahn), Morse and Stiles Colleges at Yale University (Eero Saarinen), and Edison Memorial in Edison, New Jersey (John J. Earley).

SESSION 3: Case Studies in Concrete Maintenance and Conservation chaired by Prof. Ram Sharma.

Mr. Munish Pandit, Director, Sanrakshan, presented challenges of restoring renders of Broadcasting House, All India Radio, New Delhi. He mentioned that broadcasting House, All India Radio was constructed in 1940 in Art Deco style of architecture. Both modern materials of times and traditional or rather indigenous materials were used in the building. Portland cements one of the new materials during those days and understood as symbol of strength has been used judiciously specially in slabs. New renders like terrazzo floorings is one of the important feature of the building. It has suffered maximum damage also during its rigours use over past 75 years. Restoration of "modern" renders and RCC work pose a major challenge as very less is known about the conservation techniques and tested practices. The presentation covered these issues in the public domain and attempts to initiate larger discourse on understanding of conservation standards and practices of "modern" heritage buildings.

Mr. Homeyar Goiporia VP-Projects, SK Consultants, Mumbai, presented Conservation Concrete with Stone & Brick. The presentation comprised of two parts.

Part I: TCS House: When TCS bought over Rallis India, the property called Rallis House (in the heart of the historic Fort area of Mumbai) too came under the TCS umbrella. This was a typical load bearing structure with composite walls & concrete floor plates & jack arches which had deteriorated considerably over the years. Ad hoc additions & alterations with partial & localized structural retrofitting had resulted in chaotic use of materials & systems including brick, stone, concrete & structural steel. The Architect's brief here was to convert this visual cacophony to the Global Headquarters of TCS (currently one of the biggest IT services companies in the country). Somehow, the solidity of the Tata name & all it stood for along with the fact that the company was in the sunrise IT industry (at that time) had to be represented with this building. The end result of all this, along with the fact that this was a grade II listed structure, resulted in the restoration of the external composite brick & stone skin, (with an independently supported internal framed structure with pre-stressed RCC slabs) with contemporary interiors.

Part II: Indian Institute of Management – Ahmedabad: The restoration of the internationally recognized IIMA campus designed by Louis Kahn was won in a competition. The presentation will touch on the thought process of the famous Architect while designing these buildings along with the various issues that currently need to be addressed in these beautiful exposed brick & concrete structures. Modifications carried out to the original design (due to various reasons) are intended to be reversed with architectural & structural restoration carried out in a way that remains true to the original buildings. As things stand today, a lot of the basic spadework has been done in terms of data collection (conditional mapping of the buildings, sourcing out original bills of quantities, referring old structural drawings etc), carrying out various tests on materials (eg. removal of efflorescence from brick), working out options to address the current issues etc. We will shortly be in a position to start restoration work to a typical Dormitory, which will enable us to understand in further detail the costs, time & complexity of the restoration work.

Prof. Jagjit Singh Ghuman presented Architectural Heritage, Retrofitting, and Restoration of Concrete Structures. He presented holistic conservation of Modern Architectural Heritage with focus on the City Legacy, Life & Culture; Citizen Participation through Enabling Heritage Laws, Listing of heritage sites & buildings; Scientific Grading, & Condition Mapping of heritage structures; Establish Norms – Standards for "Surface Textures" of concrete structures; Develop innovative, cost effective skills, adopt emerging new technologies and ensure Sustainable Restoration of the Architectural Facade – Surface Texture of heritage Structures. The presentation highlighted the "Demonstration Exercises" undertaken by the CCA conservation research team to Conserve/Retrofit/ Restore the "Exposed Concrete Façade" of the CCA Heritage Building, City Centre Heritage Buildings in Sector-17, Le- Corbusier Centre in Sector-19, Chandigarh.

Professor Kiran Joshi presented "Material Matters: The Case of Twentieth Century Heritage of India". She mentioned that while growing acceptance of the peculiar philosophical concepts and values of Twentieth Century Heritage of India has generally aided its identification, and, at times even its protection, one of the issues that needs parallel attention is that of the technology of conserving the Modern materials and methods of construction. Taking examples from a diverse range of manifestations, the presentation aimed to draw attention to the immensity and the complexity of the issue as also the urgent need to devise appropriate remedial measures.

Mr. SD Sharma presented "Remembering Arnold Andre Pierre **Jeanneret – Gris".**
He shared his memories with Pierre Jeanneret, he stated that Pierre Jeanneret was evoking with calm, serene, meditative, warm, noble, and humble, with a "GLINT OF LOVE IN HIS EYES who lived the life of a saint, a great architect who will discreetly enter into your heart without even your noticing it, to stay there forever. His contribution in making the city was of great value and substance. He could establish his own identity in Architecture.

Field Visits: The second day of the workshop ended with a tour of Pierre Jeanneret's work within Panjab University & Chandigarh guided by Ms. Deepika Gandhi. The tour focused on the prominent modern buildings such as the Gandhi Bhawan, Le-Corbusier centre & Jeanneret's house.



Image 1,2 & 3: Prof. Paul Gaudette, Prof. S.D. Sharma & Registrar *Col GS Chadha* Lighting the Candle on the inaugration of Exhibition

Image 4: Prof. S.D. Sharma presenting the "Remembering Pierre Jeanneret"

Image 5: Dr. Shikha Jain , director DRONAH, presenting the work on Gandhi Bhawan

Image 6: Prof. Sangeeta Bagga, CCA, presenting the memento to Prof. S.D Sharma with Dr. Shikha Jain & Prof. Ram Sharma

Photographs of Second Workshop & Exhibition on 28th & 29th April 2016

3. Theme and Content of Exhibition

The contribution of Pierre Jeanneret to Modern architecture and Chandigarh stands as undisputed as his efforts in realising the vision of the Capitol Complex on ground at Chandigarh for his first cousin Le Corbusier. This display is part of the exhibition series that is being developed during the course of research and conservation planning for the Gandhi Bhawan under the 1Keeping it Modern• Grant, Getty Foundation, USA.

Gallery 1: Panjab University

While Jeanneret's primary purpose in 15 years of his stay in Chandigarh was to execute the vision of his cousin Le Corbusier, his own evolution as an architect conversant with indigenous solutions was showcased in a range of planning and architectural works in Chandigarh and other towns. Panjab University stands as an exemplar of Pierre Jeanneret's expression in modern campus planning while simultaneously addressing the dictates of a harsh climate, a shoestring budget and near absence of mechanised means of construction.

Gallery 2: Panjab University and Gandhi Bhawan

This gallery presents a brief summary of physical issues that have emerged in some of the historic buildings in the Panjab University Campus. It also introduces the Gandhi Bhawan as an iconic sculptural masterpiece of a building designed by Pierre Jeanneret at the peak of his professional practice. Some of the initial documentation work undertaken for the Gandhi Bhawan has been showcased in this gallery.

Gallery 3 and Gallery 4: Gandhi Bhawan Conservation: Mapping and Assessment

The Gandhi Bhawan, constructed in 1962 has remained largely intact despite some alterations in the past to keep up with the changing needs of the building. Having completed 54 years, the building does show some signs of distress. The exhibits in this gallery show the methods used for assessing conditions of various exterior and interior elements of Gandhi Bhawan. A number of techniques have been adopted including visual and mechanical surveys to identify the issues. The laser scanning documentation, Radar and Infrared surveys are also being supported by archival drawings and documentation, including the original specifications approved for the building. These assessments help in understanding probable causes and current conditions for future treatments to be proposed in the Conservation Plan for Gandhi Bhawan.

4. Annexure: List of Participants

Workshop - 2 List of participants			
S.No	**Name**	**Email id**	**Contacts**
1.	**Arpita dayal**	arpitadayal@gmail.com	Assistant Professor, SPA New Delhi
2.	**Poonam Verma**	pvmas1@gmail.com	Poonam Verma Mascarenhas, B.Arch, M.A. Conservation (U.K.) DIRECTOR A R C H I N O V A _ E N V I R O N S 69, vasudha colony lane 2, Alto Santa Cruz PO Bambolim Complex, Goa 403202 tel: 0832 2459109 mob:+919850961896 (India)
3.	**Tanya Kumar**	tanya.cca33@gmail.com	Chandigarh College of Architecture, sector 12, Chandigarh
4.	**Rishabh jain**	arrishabh@yahoo.co.in	Conservation Architect, P.I.U, I.D.I.P.T-US Club, Shimla,(H.P)
5.	**Vikas Sharma**	ar.vikassharma@gmail.com	Assistant Professor, MM School of Architecture MM University ,Sadopur Ambala,HR
6.	**Prabha Choudhary**	prabha.choudhary25@gmail.com	Architect (Conservation Architect) Sthaapatya sector 11-B, 696, Chandigarh +91 8988268262
7.	**Ms. Renu Sehgal**	renu_saigal@yahoo.com	Former Chief Architect, UT, Chandigarh
8.	**Ms. Balwinder Saini**	bsaini_ar@yahoo.com	Former Chief Architect, Panjab
9.	**Ravi Sandhu**	ravisandhu.dronah@gmail.com	Architect , DRONAH
10.	**Bhavya Ahuja**	dronah.bhavya@gmail.com	Architect, DRONAH
11.	**Sheen Pandita**	panditasheen123@gmail.com	Student of 6th semester CCA

12.	**Guneet Kaur**	guncca95@gmail.com	Student of 6th semester CCA
13.	**Avadh Singh**	avadhsingh15@gmail.com	Student CoA IET Bhaddal Ropar. Cell No. 8558998602
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15.	**Marie Gilliard**	marie.gilliard@hotmail.fr	French Student
16.	**Camilla Gravouil**	camille_gravouil@hotmail.fr	French Student
17.	**Aashish**	ashish1gahlawat@gmail.com	Student of 2nd semester CCA
18.	**Harshavardhan**	harsh.kher1@gmail.com	Student of 2nd semester CCA
19.	**Saumya Sharma**	saumya.cept@gmail.com	Conservation Architect, Shimla, HP
20.	**Chhavi Arya**	chhaviarya.cca@gmail.com	Architect, Jaipur, Rajasthan +91-9582096084
21.	**Ms. Mischa Gorchov Brearley**	mischa@globalnet.co.uk	
22.	**SD Sharma**	shivdatt.31@gmail.com	Invited Speaker
23.	**Kiran Joshi**	kiranjoshi2020@gmail.com	Team Member Getty Project
24.	**Shikha Jain**	dronah@gmail.com	Team Member Getty Project
25.	**Prafulla Janbade**	prafullatj@gmail.com	Invited Speaker
26.	**Prof. Jagjit Singh Ghuman**	jagjit.s.ghuman@gmail.com	Invited Speaker
27.	**Rohit Jigyasu**	Rohit.jigyasu@gmail.com	Team Member Getty Project
28.	**Manish Sharma**	manishwebworld@yahoo.com	Team Member Getty Project
29.	**Vanicka Arora**	vanicka.dronah@gmail.com	Team Member Getty Project
30.	**Bhawna Dandona**	Dandona.bhawna@gmail.com	Team Member Getty Project
31.	**Arun Menon**	arunmenon@iitm.ac.in	Team Member Getty Project
32.	**Ram Sharma**	ramsharma34@gmail.com	Invited Chair
33.	**Suchandra Bardhan**	suchandrab@gmail.com	Team Member Getty Project
34.	**Manu Santhanan**	manusanthanam@gmail.com	Team Member Getty Project
35.	**Munish Pandit**	manishwebworld@yahoo.com	Invited Speaker
36.	**SS Bhatti**	ar.surinderabhatti@yahoo.com	Invited Chair

37.	**PR Luthra**	picaasoo@yahoo.co.in	Invited Speaker & Chair
38.	**Harpreet Singh**	architectpu14@gmail.com	Invited Speaker
39.	**Mr. Gulati**		
40.	**RK Rai**	xen1@pu.ac.in	Invited Speaker
41.	**Prof Rajiv Lochan**	mrajivlochan@gmail.com	Professor of History, PU
42.	**Prof Ramanjit Kaur**	assoc_dir_research@pu.ac.in	Associate Director, RPC, PU
43.	**Prof. OP Katare**	director_research@pu.ac.in	Director Research, RPC, PU

Emergency Preparedness Workshop- 3

Overview on Emergency Preparedness Workshop:

Dr. Jigyasu coordinated the workshop on Emergency Preparedness and Response for Gandhi Bhawan was organized by the Panjab University in association with DRONAH; *Development and Research organisation for Nature, Arts and Heritage* on 7th July 2016. This workshop was third in the series and aimed at building the capacity of the local staff to prepare and respond to emergencies that may result from hazards such as earthquakes and fires.

The workshop started with the briefing of emergency response team for Gandhi Bhawan on their roles and responsibilities. The team consisted of the overall coordinator and sub-teams responsible for rescue, building and infrastructure, administration and supplies, salvage of objects and communication. This was followed by presentations on emergency preparedness planning and a special lecture on first aid to cultural heritage in times of emergency by Madhusudan Singh, a disaster management expert from Agra. Lecture on fire safety and demonstration on the use of various types of fire extinguishers was also conducted by the fire officers.

A practical exercise on the evacuation of visitors and staff to the designated assembly area, salvage of objects to the temporary storage area and in-situ protection of architectural fragments and objects was conducted. Use of equipment for emergency response such as helmets, masks, gloves, plastic sheets, CSI tape etc. was also done. As part of this project, these equipment have been specially procured by the university and kept in specially designated storage area for use in case of emergency.

An exhibition on the disaster risk assessment of the six key buildings of the Panjab University was also organized by the Chitkara School of Planning and Architecture, Chitkara University. The work was an outcome of eighth semester students directed and conceived by its faculty. The exhibition will be on till 14th July 2016 at the Fine Arts Museum of Punjab University.

Presentation made by Dr. Rohit Jigyasu during the workshop on Emergency Preparedness and Response for Gandhi Bhawan on 7th July 2016

Minutes of Meeting of Stakeholder's Meeting, Gandhi Bhawan, Panjab University, Chandigarh

A meeting was held on 22.10.2016 between **03.30am-06.00pm** in Committee Room of Gandhi Bhawan, P.U. at Chandigarh to review the draft conservation management plan prepared by DRONAH. The meeting was presided by the Honourable Vice Chancellor Prof. Arun K Grover.

The meeting was attended by the following:

S. No	Name	
1.	Prof. Arun K Grover	Vice Chancellor, PU
2.	Col G.S. Chadha	Registrar, P.U.
3.	Dr. Manoj Arora	Director PEC
4.	Prof. RK Sinha	Director CSIO
5.	Mr. Kapil Setia,	Chief Architect, UT, Chandigarh
6.	Ar. Shiv Datt Sharma	Architect, Chandigarh
7.	Amar Rajinder	Architect, Chandigarh
8.	Sanjeev Kumar	Architect, U.T.
9.	Prof. Rajnish Wattas	Architect, Chandigarh
10.	Ar. P R Luthra	Adviser PU Architecture Department
11.	Ar. Harpreet Singh,	Architect, P.U.
12.	Er. RK Rai	XEN, P.U.
13.	Dr. Manish Sharma	Chairperson, Gandhian & Peace Studies, PU
14.	Prof. Kiran Joshi	Chitkara University
15.	Prof. Sangeeta Bagga	CCA, Chandigarh
16.	Mr. Mantu Das	On Behalf of Dr. Suchandra Bardhan, Landscape Consultant, DRONAH
17.	Dr. Shikha Jain	Director DRONAH, Gurgaon
18.	Rakesh Jain	Director Directions, Gurgaon
19.	Vanicka Arora	Conservation Architect
20.	Bhawna Dandona	Conservation Architect
21.	Ravi Sandhu	Architect, DRONAH, Gurgaon
22.	Bhavya Ahuja	Architect, DRONAH, Gurgaon

The agenda for the meeting:

1. Review of Draft Conservation Management Plan prepared by DRONAH for Gandhi Bhawan and its water feature. Presentation by Dr. Shikha Jain, Director, DRONAH

2. Review of mock-ups for exterior panels, interior lighting, and surface treatments proposed for interventions for repair, and conservation maintenance.

Vice Chancellor Prof. Arun K. Grover welcomed all stakeholders to the review meeting of draft conservation management plan for Gandhi Bhawan.

Ar. Shiv Datt Sharma, Member of Chandigarh Heritage Conservation Committee, UT, Chandigarh has appreciated the work done by the team.

Registrar Col. GS Chadha, briefed about the project funded by Getty foundation and its phases to the all-stakeholder's. He explained the features of the project and mentioned that an exhaustive research has been conducted by DRONAH team.

Further he shared his experience of the Getty workshop held in July at London where the team presented work progress of Gandhi bhawan. He mentioned that Panjab university will form a conservation committee for other buildings within the campus to prepare their conservation management plan in future.

Dr. Shikha Jain, Director, DRONAH presented the draft conservation management plan for the stakeholder's feedback. She explained the timeline and tasks of the project along with work completed till date. She also mentioned that draft has been circulated a week before meeting to the stakeholders for their suggestions which will be incorporated in the final plan.

She gave detailed information about the building and its condition which has been recorded in the form of 3d and 2d drawings. The policies for conservation and use & Interpretation of the site have been incorporated in the plan.

The conservation measures and recommendation for the building are given based on archival research, on-site surveys and structural assessments done by the team. Mr. Kapil Setia Chief architect, U.T. suggested to include more functions in the building and to make it multipurpose in use.

Registrar advised to incorporate the HVAC system in the building without disturbing the originality of the external panels.

Prof. Kiran Joshi appraised that the contemporary standards from ICOMOS- 2016 will be followed.

Dr. Shikha Jain explained the proposal plans for Gandhi Bhawan. The proposals include Use and Interpretation, furniture, landscape, risk management, universal access plan and Services. She also mentioned that in the process of conservation mock-ups will be done for each element of the building. Mock-up for the external cladding panel was shown in the meeting while other mock-ups for furniture, terrazzo flooring and water proofing of pool etc. are in process.

P.U., Architect Harpreet Singh told in the meeting that the Landscape proposal for front lawn (open ground) of Gandhi Bhawan is being prepared for organising events and programmes.

Mr. Kapil Setia Chief architect, U.T. inquired about the seismic survey of the building as Chandigarh falls in Zone-IV (High risk).

Dr. Shikha Jain said that given suggestion will be incorporated and the experts at IIT alongwith Dr. Rohit Jigyasu are working on it. The structural behaviour of the building has been reviewed as per seismic zone for Chandigarh.

Prof. Rajnish wattas, CCA, expressed his concern about the water challenge for the pool. He suggested to improve the rain catchments and water harvesting system for Gandhi Bhawan.

He gave suggestions about signage strategy that the material should be in bronze and colour of walls should be specific to Gandhian philosophy.

Dr. Shikha Jain told that the landscape proposal has been prepared based on site's horticulture record and to maintain the visual integrity of Gandhi Bhawan.

Mr. Mantu Das presented-on behalf of landscape consultant Dr. Suchandra Bardhan, he explained the proposal for treatment and maintenance of pool and water. He stated the methodology of filtration and aeration system for the water.

Dr. Manish mentioned in the meeting that Gandhi Bhawan has heavy footfall due to the functions organised in the building and many competitions, debates and cultural programmes have been organised.

Vice chancellor suggested to make the building more comfortable by incorporating new technologies with innovations to improve its functionality.

Mr. Kapil Setia Chief architect, U.T., advised to incorporate acoustical treatment for the auditorium and committee room.

Ar. Harpreet Singh, Architect P.U. suggested to add fencing or barriers to differentiate between road level and platform level in front of Gandhi Bhawan for vehicles.

Prof. Kiran Joshi suggested to consider the guidelines of Buffer zone of Gandhi Bhawan which should also be incorporated in the final plan.

Architect S.D. Sharma advised to incorporate cross ventilation system for the cooling.

Er. R.K. Rai informed that the rain water harvesting system is already in place in the university except Gandhi Bhawan. He suggested that the water collected from the campus can be directed to the Gandhi Bhawan pool.

After the presentation Architect, Rakesh Jain showed the progress of mock-ups prepared for external cladding panels and discussed the process with stakeholder's.

Meeting ended with vote of thanks to all stakeholders for their feedback.

ANNEXURE **10.3**

ASSESSMENTS

EXTERIOR GLOSSARY

OPEN JOINT

Loss of mortar from the joints

PREVIOUS REPAIR

Interventions undertaken in the past to repair or modify that have altered original character

EXPOSED REBAR

Rebar visible due to loss of aggregate on top leading to it being exposed to elements

STAINING

Accumulation of dust due to action of water and pollution or any other factor.

INFESTATION

Presence of insect nests, termite mounds, ant hills and other pests

VEGETATION

Growth of small plants, extending roots into structure

EXTERIOR GLOSSARY

LOSS OF AGGREGATE

Missing aggregate from the panel surface creating a void, possibly due to erosion, mechanical forces causing damage

STRUCTURAL CRACKS

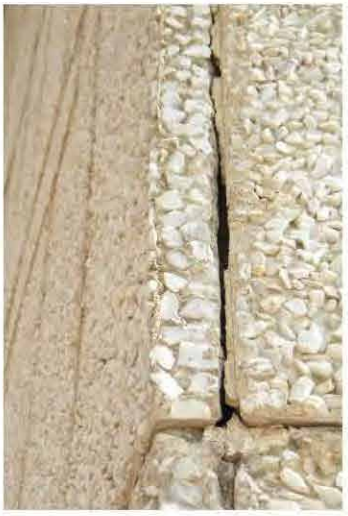
Cracks resulting from separation of one part from another. Potentially harmful to the integrity of panels and eventual threat to life safety.

SURFACE CRACKS

Cracks resulting from expansion of materials or surface damage but not presently a threat to the integrity of panels

DISPLACED PANEL

Change in original location of panel



DISLODGED PANELS

Loss of cohesion of panel with the substrate (concrete/brick) due to deteriorated base mortar or broken cramp

DEPOSIT

Accumulation of v material like paint splashes

INTERIOR GLOSSARY

STAINING

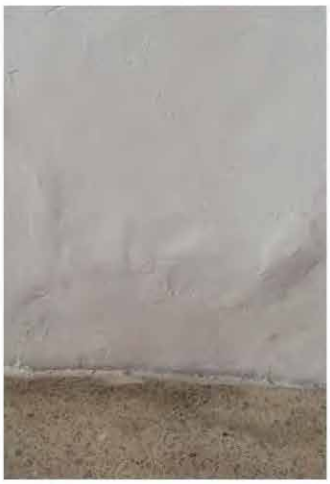
Accumulation of dust due to action of water and pollution or any other factor.

CRACKS

Fissures resulting from separation of one part from another, more than 4 mm wide, mostly emerging from the joints.

LOSS

Loss of terrazzo from the flooring (weathering and mechanical damage).

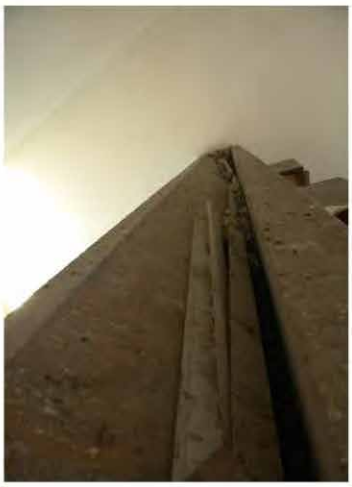


PLASTER DEFECT

Unevenness in plaster surface due to water retention and minor flaking.

TERMITE

Presence of termite on the wall surface at door junction.



DEPOSIT

Accumulation of dirt on the wall due to lack of maintenance.

INTERIOR GLOSSARY

PREVIOUS REPAIR

Interventions undertaken in the past to repair or modify that have altered original character.

OPEN JOINTS

Loss of mortar from the joints.

TERMITE

Presence of termite.

EFFLORESCENCE

Presence of whitish, powdery substance on the surface composed of soluble salt crystals.

PREVIOUS REPAIR

Interventions undertaken in the past to repair or modify that have altered original character.

LOSS OF CONCRETE

Loss of concrete from the wall surface (water or mechanical damage)

INSPECTION OF GANDHI BHAWAN

PROJECT: Gandhi Bhawan, Panjab University, Chandigarh

PREFACE:

The scope of this exercise is to carry out a preliminary assessment of the existing condition of Gandhi Bhawan. It particularly concentrates on mapping of distresses in facade panels, identification of structural system of the building, determining the composition of facade panels and mortar supporting it, and inspection of seepage through roof.

1 DISTRESS MAPPING OF FACADE PANELS

A visual inspection of the facade panels was carried out throughout the building. Five major types of distresses were observed:

1. Dislodged Panels
2. Cracked Panels
3. Loss of mortar around Panels
4. Loss of aggregates from Panels
5. Missing Panels

The following pictures represent some of the distressed panels:

Figure 1.1 Dislodged Panel

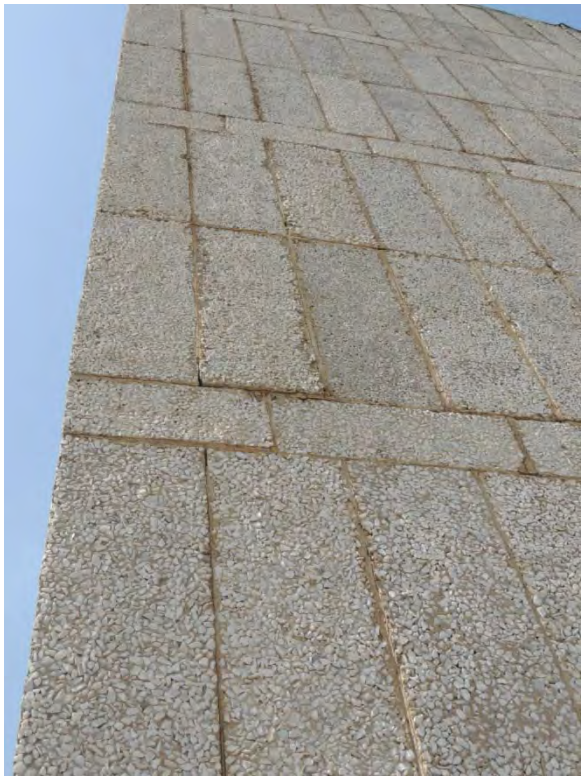


Figure 1.2 Dislodged Panel

Figure 1.3 Dislodged Panel

Figure 1.4 Cracked Panel

Figure 1.5 Cracked Panel

Figure 1.6 Cracked Panel

Figure 1.7 Loss of Mortar around Panels

Figure 1.8 Loss of aggregates from Panels

Figure 1.9 Panel Missing

A summary of the number of panels distressed is given below:

Number of panels severely dislodged	34
Number of panels severely cracked	9
Number of locations with severe mortar loss around them	5
Number of panels with severe aggregate loss	5
Number of panels missing	3

Notation:

The building can be divided into 3 elevations as shown in Figure 1.10

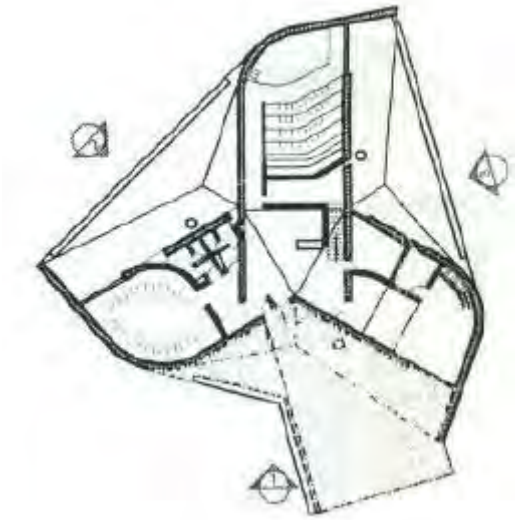


Figure 1.10 Key Plan

Elevation - 1 is shown below:

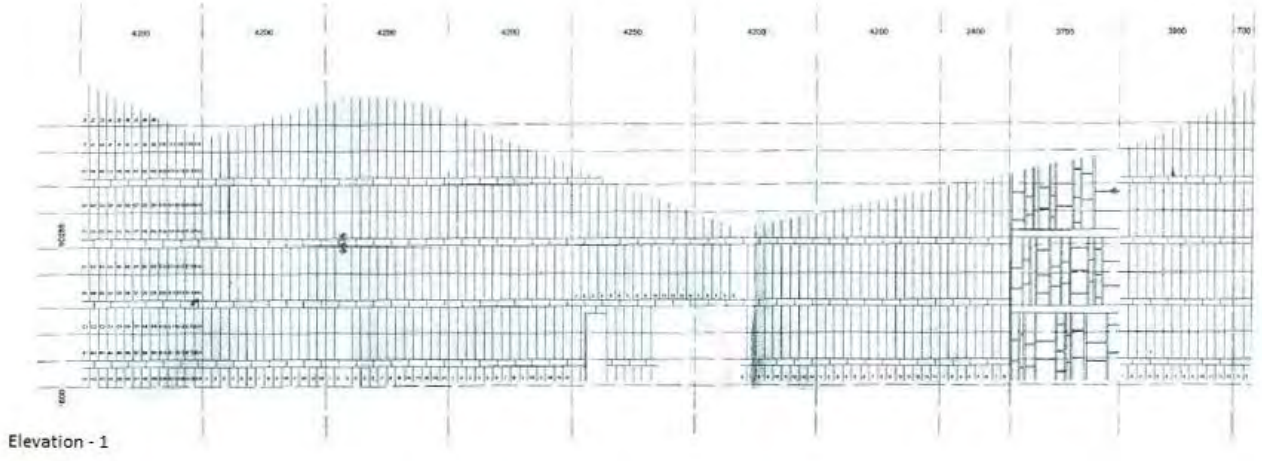


Figure 1.11 Elevation - 1

Each elevation can further be divided into 3 parts:
Elevation - 1a

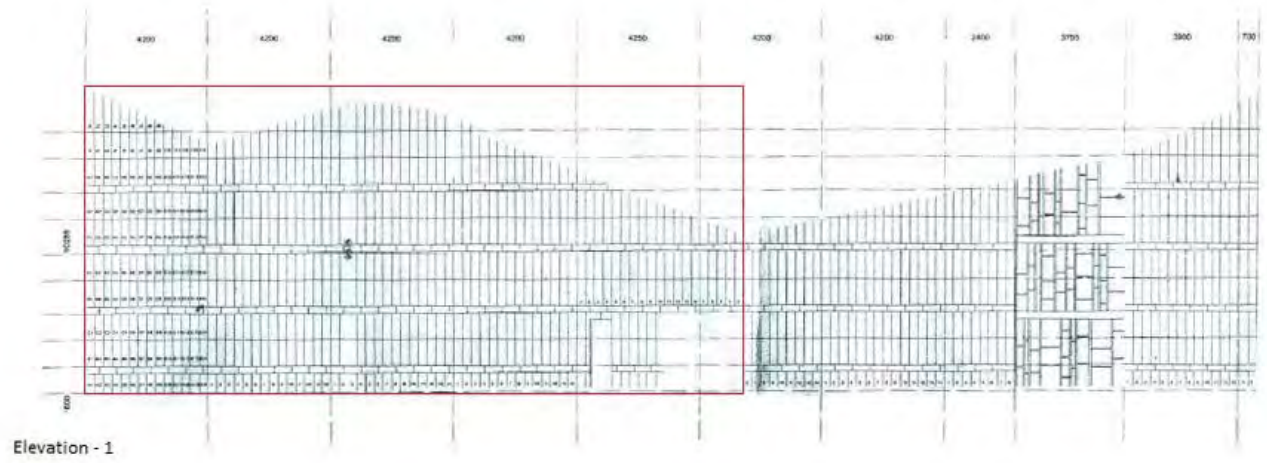


Figure 1.12 Elevation - 1a

Elevation - 1b

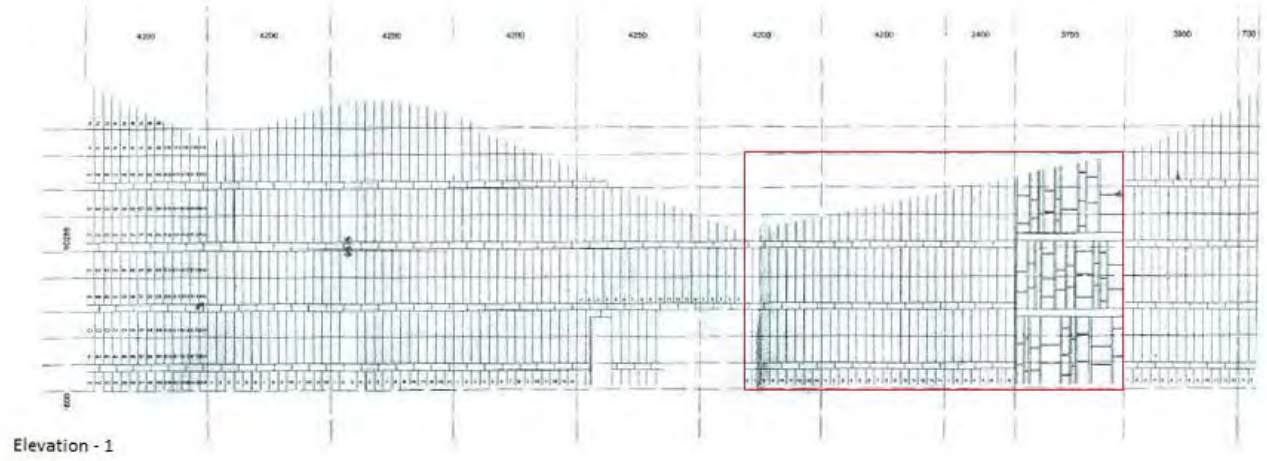


Figure 1.13 Elevation - 1b

Elevation - 1c

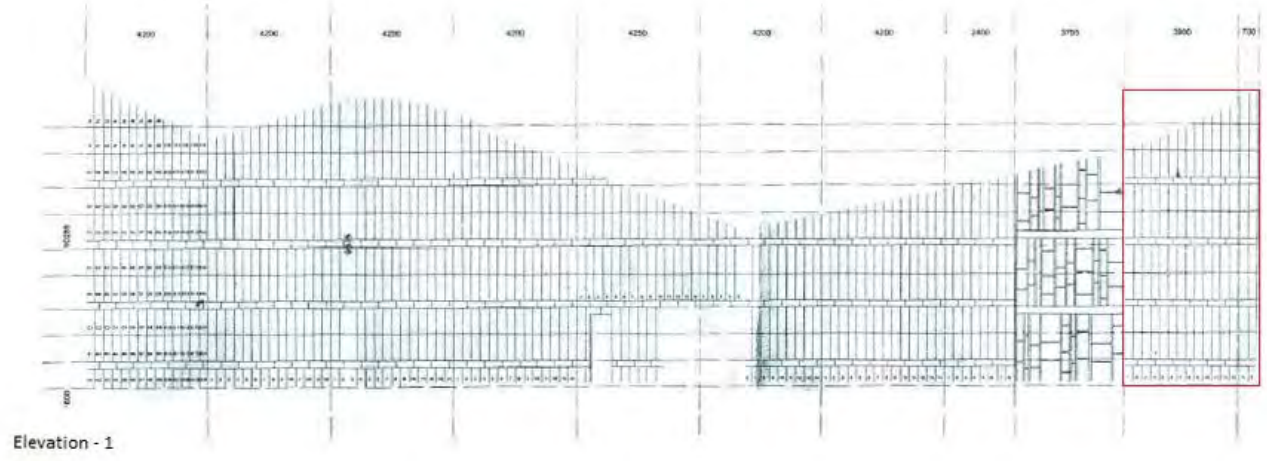


Figure 1.14 Elevation - 1c

As we move along the vertical axis, the panels oriented vertically can be named A1, B1, C1, ... and so on.

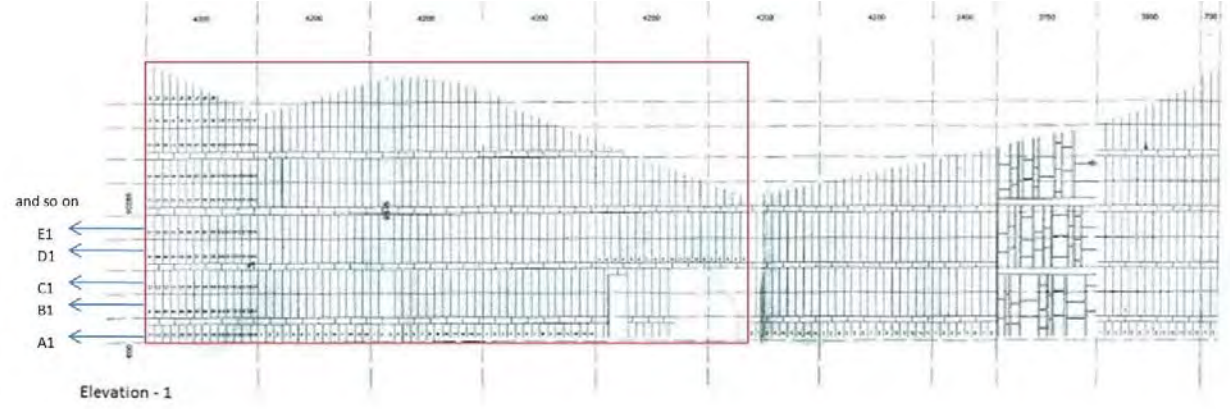


Figure 1.15

And the panels oriented horizontally can be named Z1, Y1, X1, ... and so on.

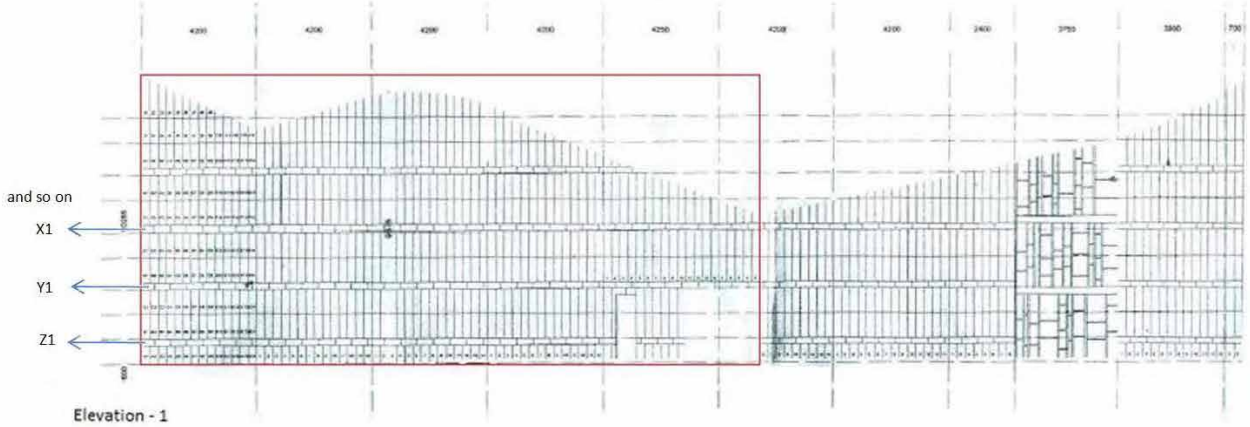


Figure 1.16

As we move along the horizontal axis, panels can be named A1, A2, A3, ... and so on.

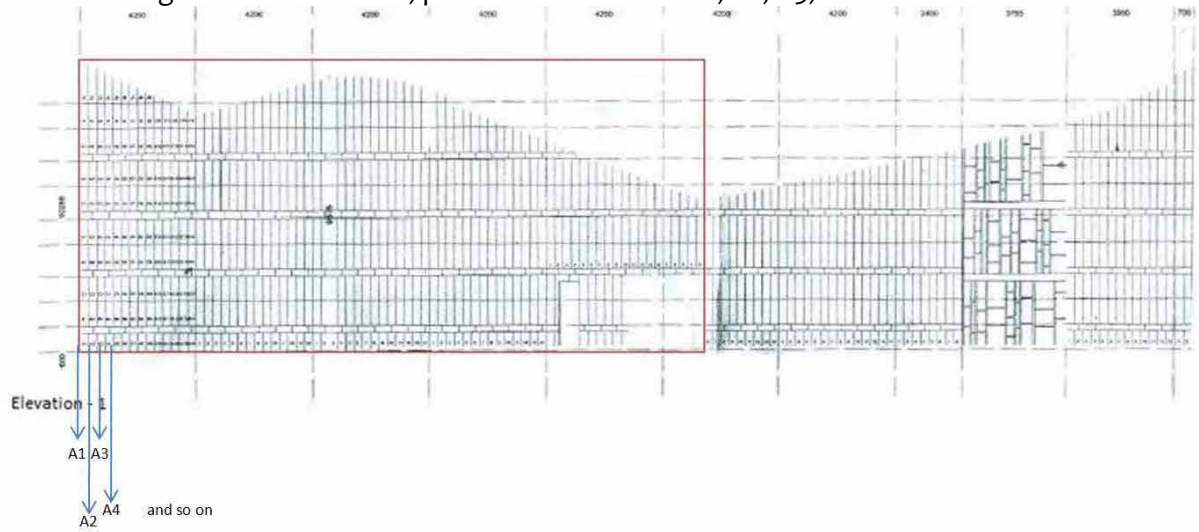


Figure 1.17

So a panel named E1aB6 would be found in Elevation - 1a, Row number 2, Column number 6.

According to the above mentioned nomenclature, the following panels are dislodged:
Elevation - 1: aA1, aJ27, aJ28, aJ29, aJ32, aJ33, aJ34, aJ35, cC8, cG10, cF11, cF12

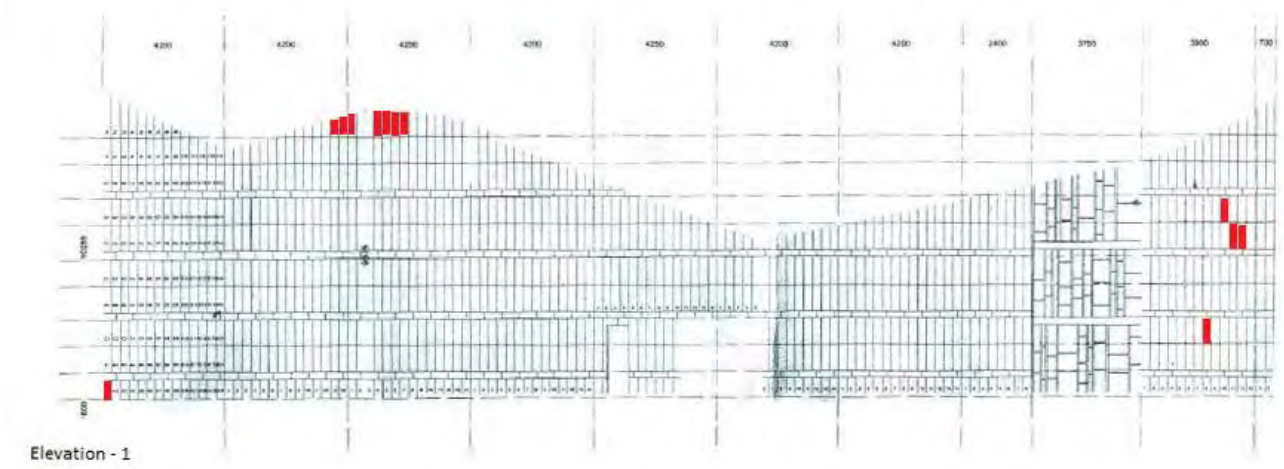


Figure 1.18

Elevation - 2: aD1, aD2, aE1, aF1, aG1, aD40, aD61, cD13, cE13, cB15, cA6

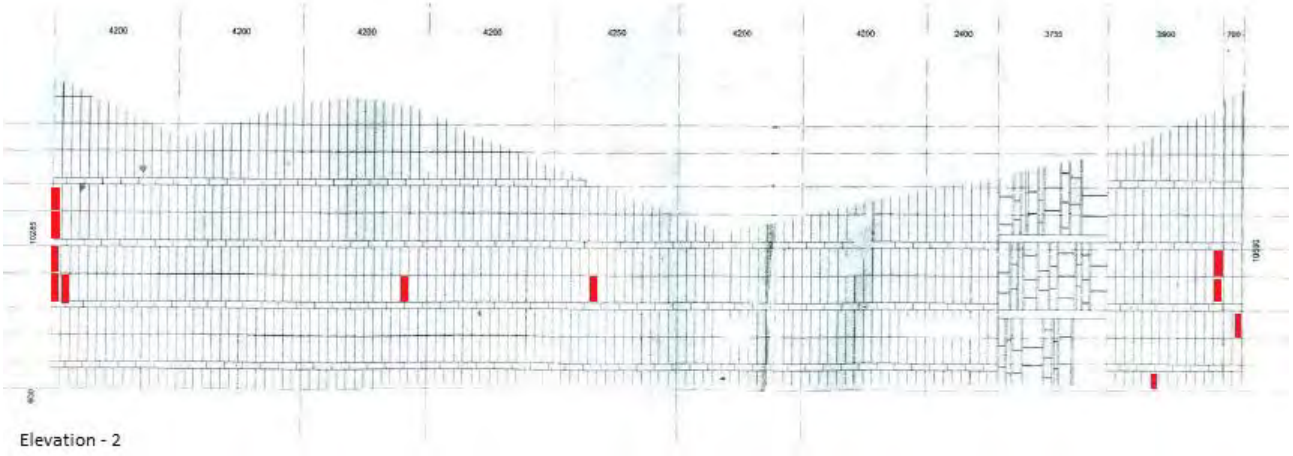


Figure 1.19

Elevation - 3: aF46, aC2, aH2, aJ2, aI10, aH11, aH12, aG28, aG34, aB30, cF13

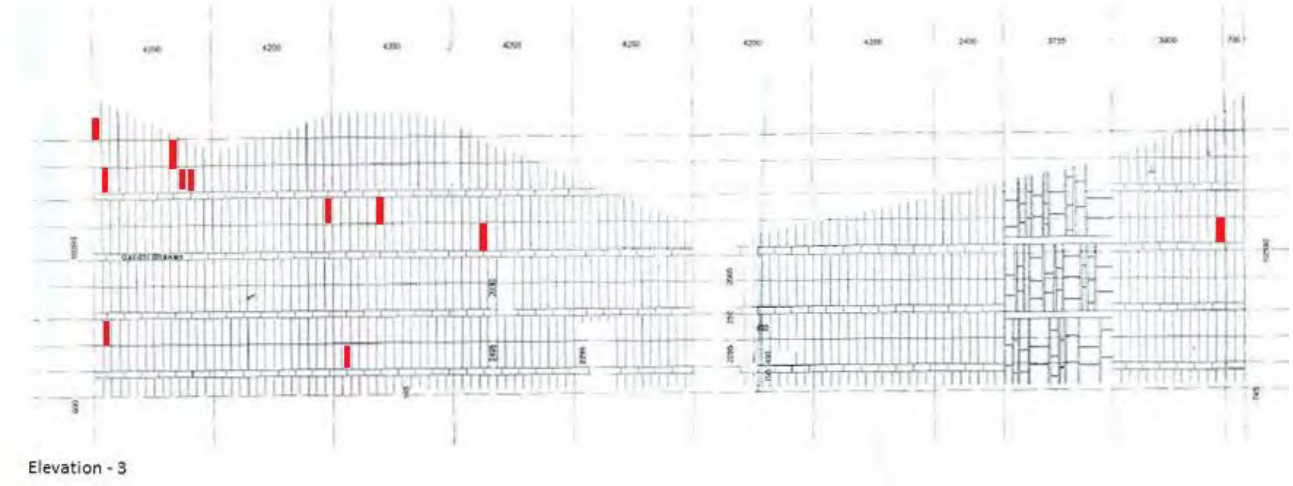


Figure 1.20

The following panels are cracked:
Elevation - 2: aX29, cD13, cE13, aC37

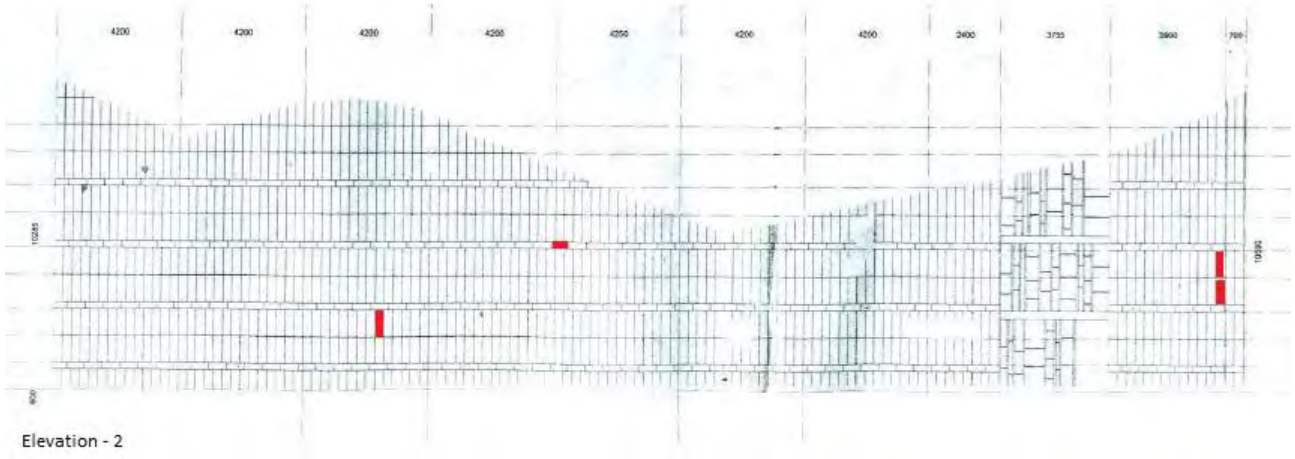


Figure 1.21

Elevation - 3: cA11, cA12, cA13, cB8, cC13

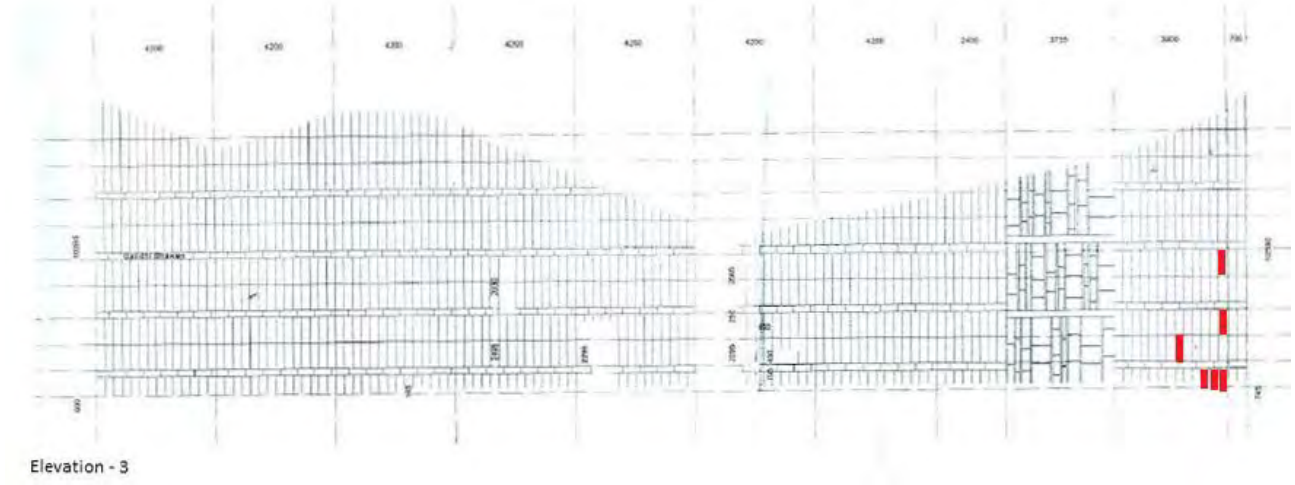


Figure 1.22

The following locations have mortar loss:

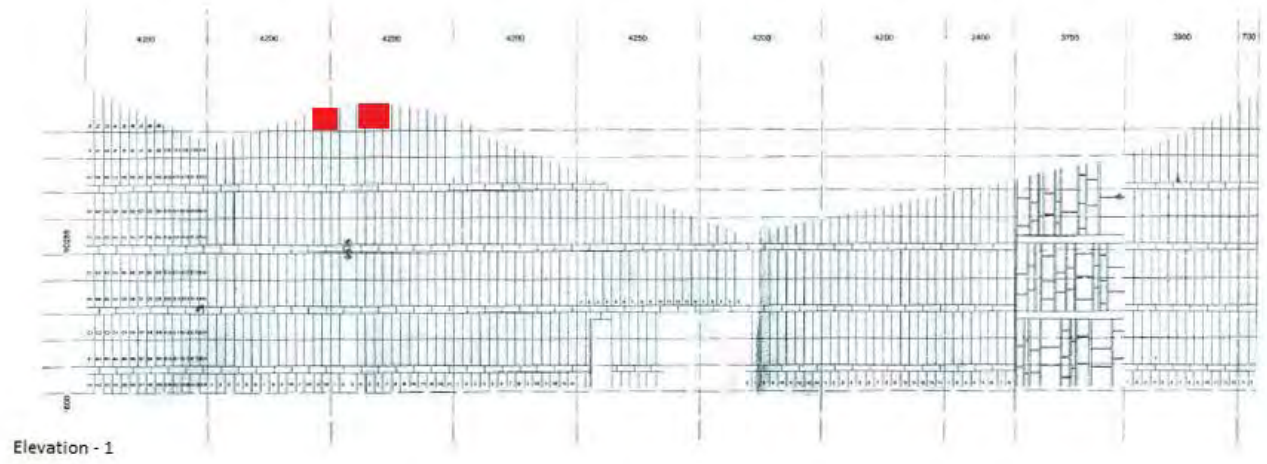


Figure 1.23

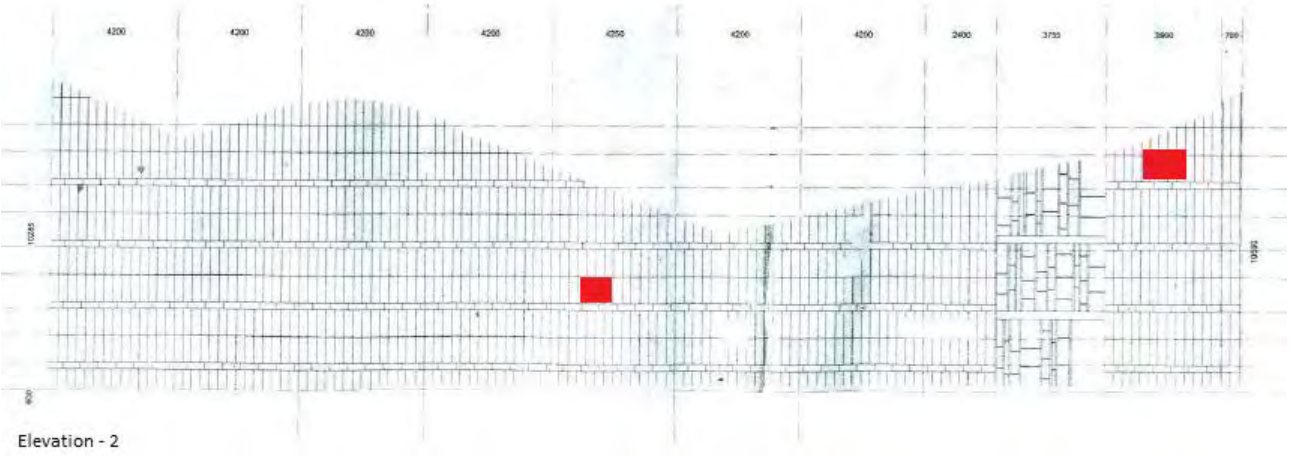


Figure 1.24

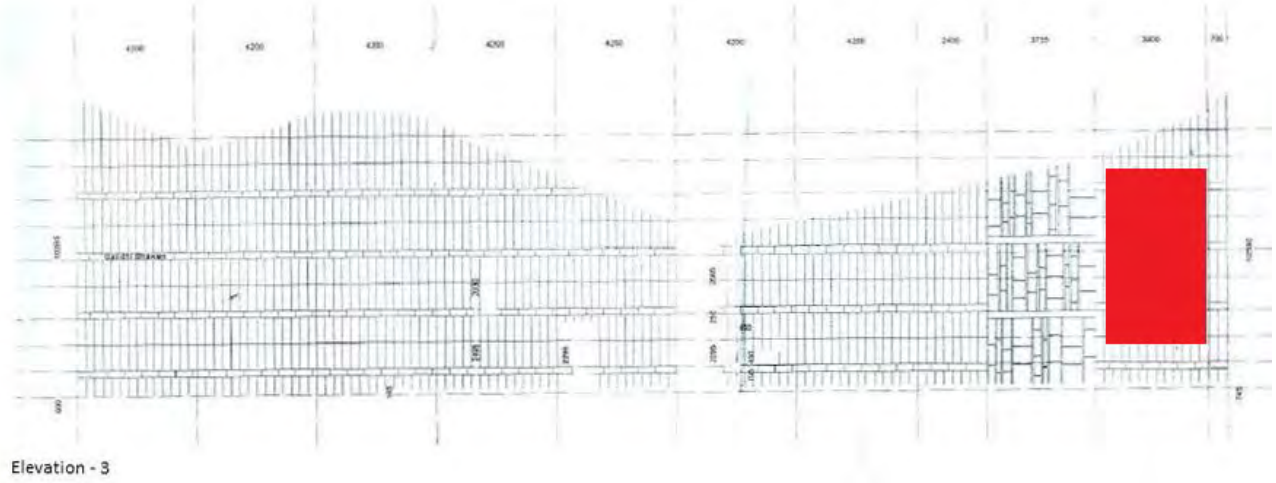


Figure 1.25

The following panels have aggregate loss:
Elevation - 1: aE5, aE6, bF21, bF23

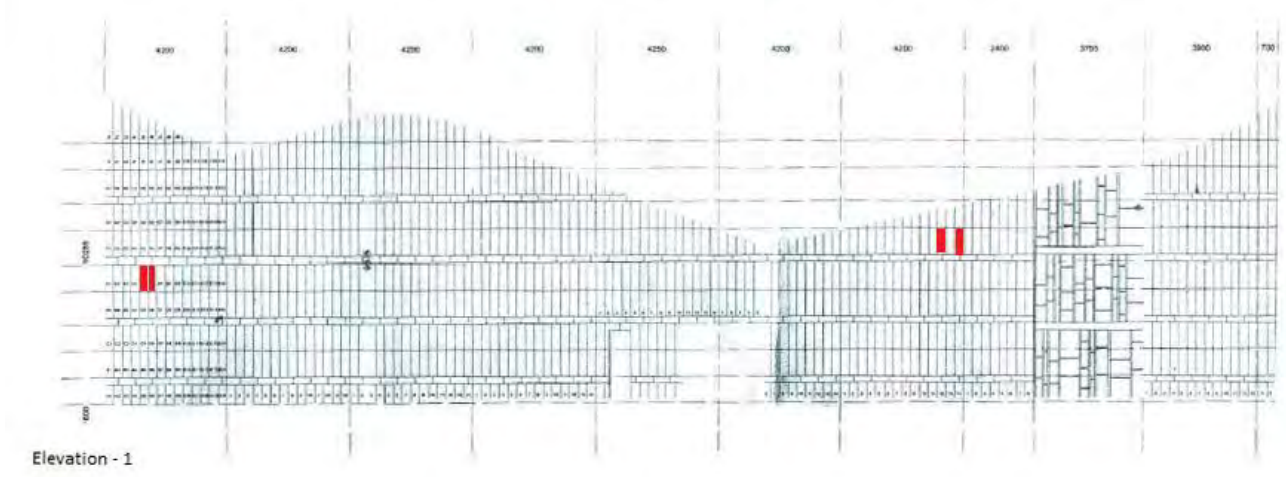


Figure 1.26

Elevation - 3: aH26

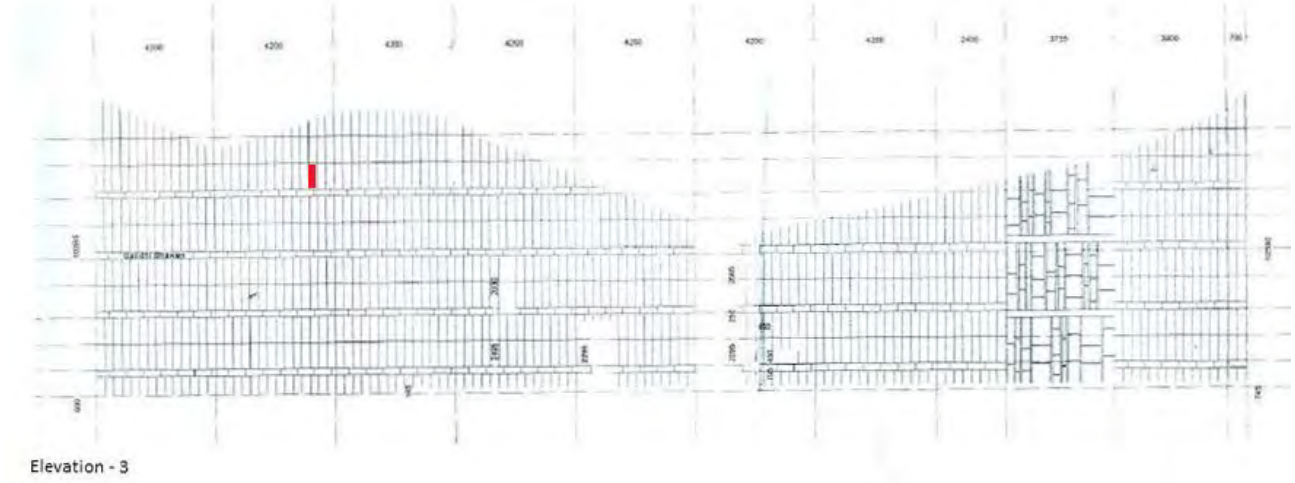


Figure 1.27

The following Panels are missing:
Elevation - 1: aJ44, cJ13

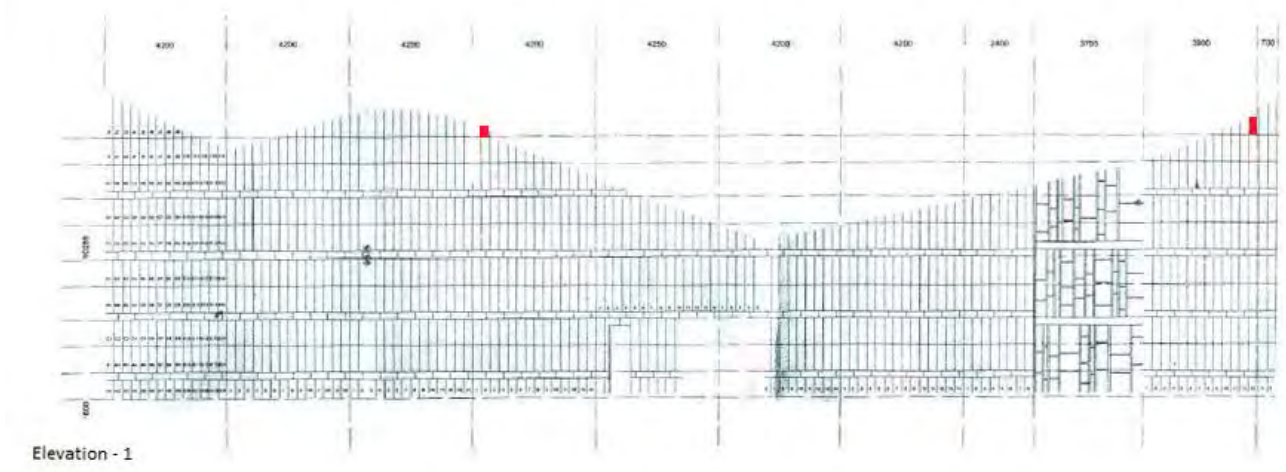


Figure 1.28

Elevation - 2: aJ1

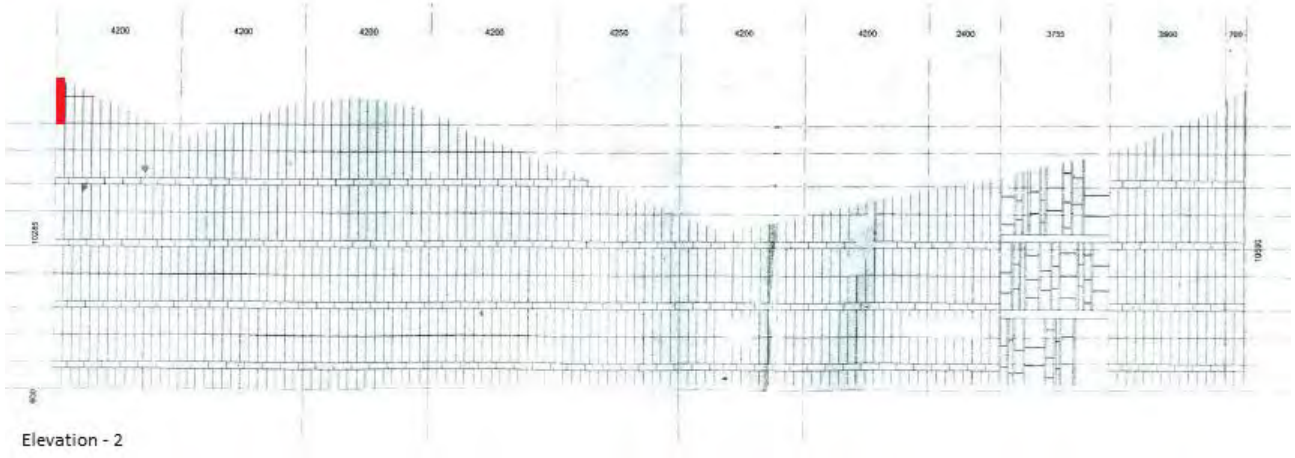


Figure 1.29

Infrared (IR) scanning of the building was also done to determine if IR scans are able to indicate panels with distresses. The results obtained from the scans are compared with those of visual inspection (or physical inspection) below:

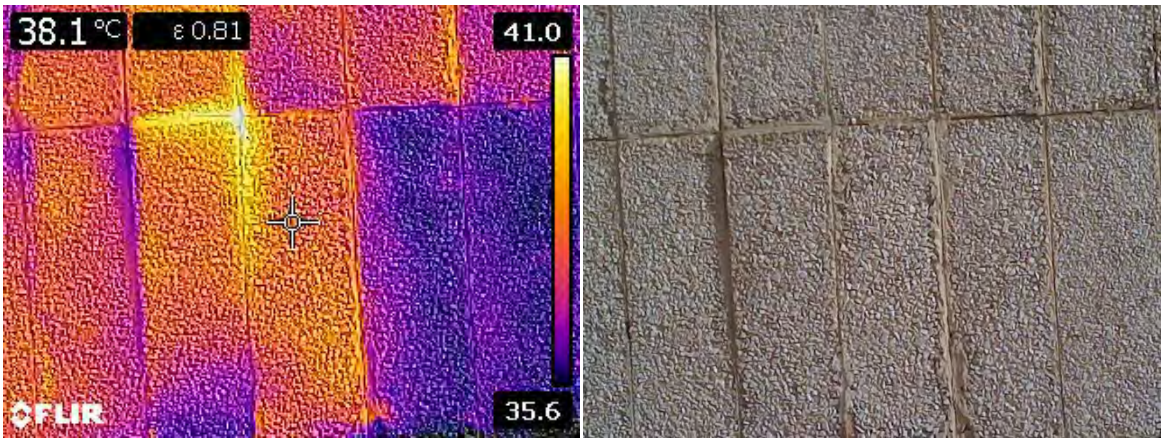


Figure 1.30 Dislodged Panel

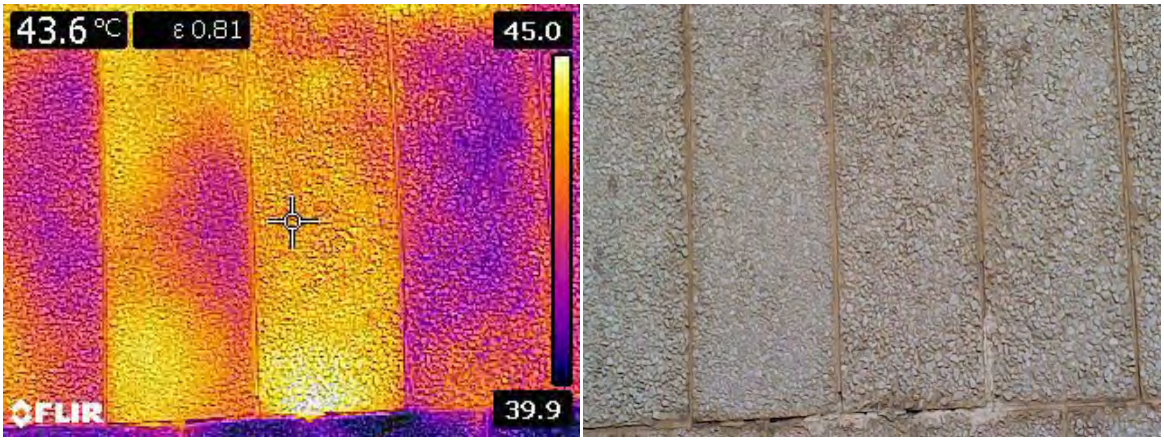


Figure 1.31 Loose panel (physical inspection)

It can be seen that IR scan shows dislodged or loose panels as brighter than other panels (in the middle of the day. IR scans late at night or early in the morning showed these panels darker.).

But IR scanning has its limitations:

1. IR scanning cannot identify all types of distresses, particularly due to the resolution. For example, cracked panels cannot be identified using IR scan.

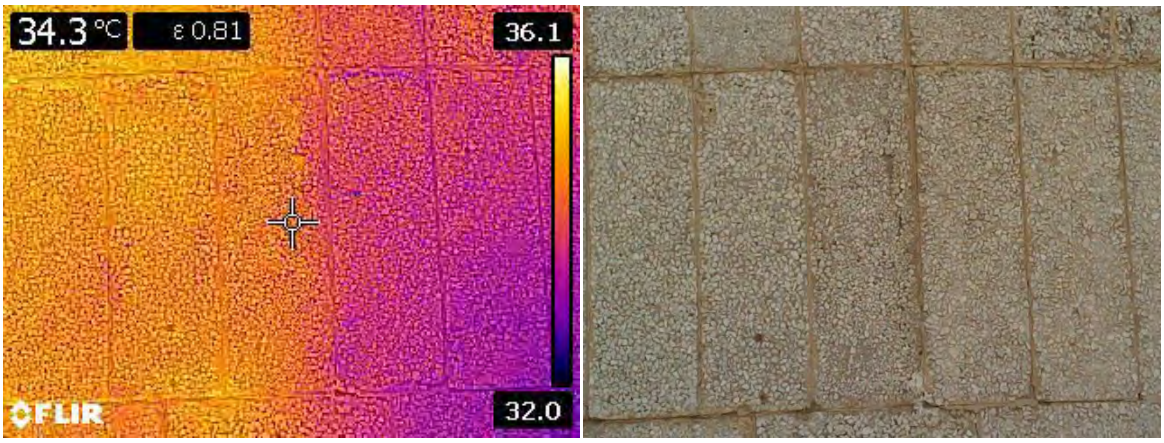


Figure 1.32 Cracked panel

2. No indication about the magnitude of the distress can be obtained. Even comparison between distresses of two different panels is not possible.

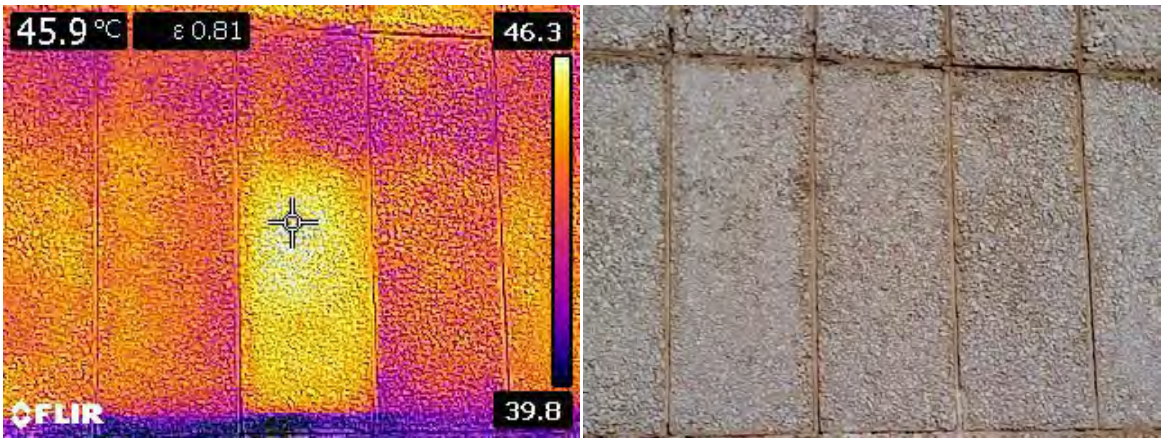


Figure 1.33 Two loose panels(Left one being looser than the central one)

3. Distresses in panels cannot be captured if a number of panels are seen through the IR scan together, owing to the large temperature range captured in the scan. Therefore, only a small number of panels can be scanned at a time to obtain useful results.

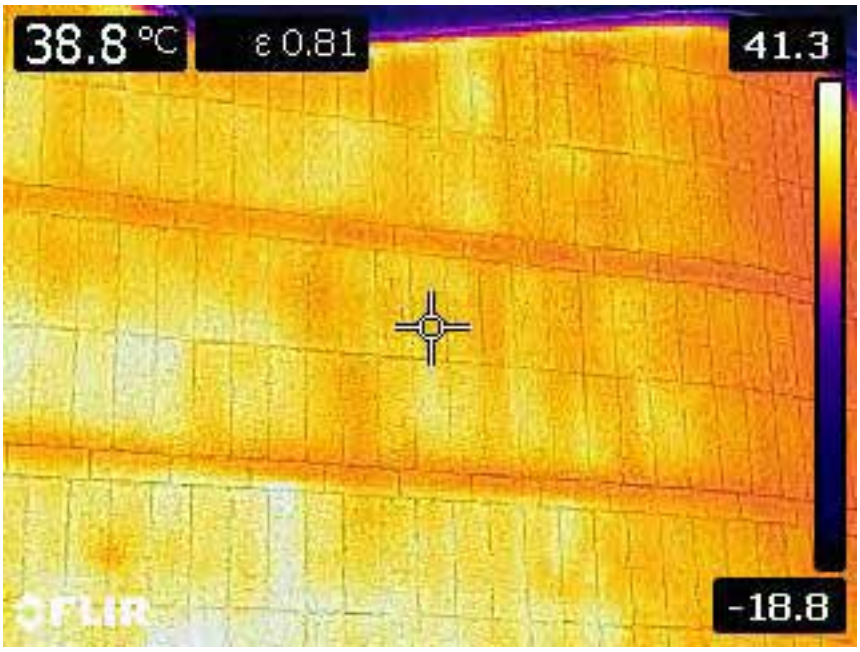


Figure 1.34

4. The results of the IR scan are affected by many factors including the ambient temperature, time of day when scan is carried out, shadows on buildings, etc.

2 IDENTIFICATION OF STRUCTURAL SYSTEM USING RADAR SCANS AND IR IMAGES

RADAR scans and IR images were taken on both interior and exterior of the walls of the structure at different locations to identify the presence of columns and beams. The IR images were taken during afternoon when the walls were fully exposed to the sun.

Figures 2.1 & 2.2 show the IR images taken from both sides of the wall highlighted in the key plan. From the figures, it is observed that only beams are present at that location. The temperatures recorded at the locations of the beams are found to be lower than those recorded elsewhere which is due to the difference in temperature emissivity between concrete and bricks.

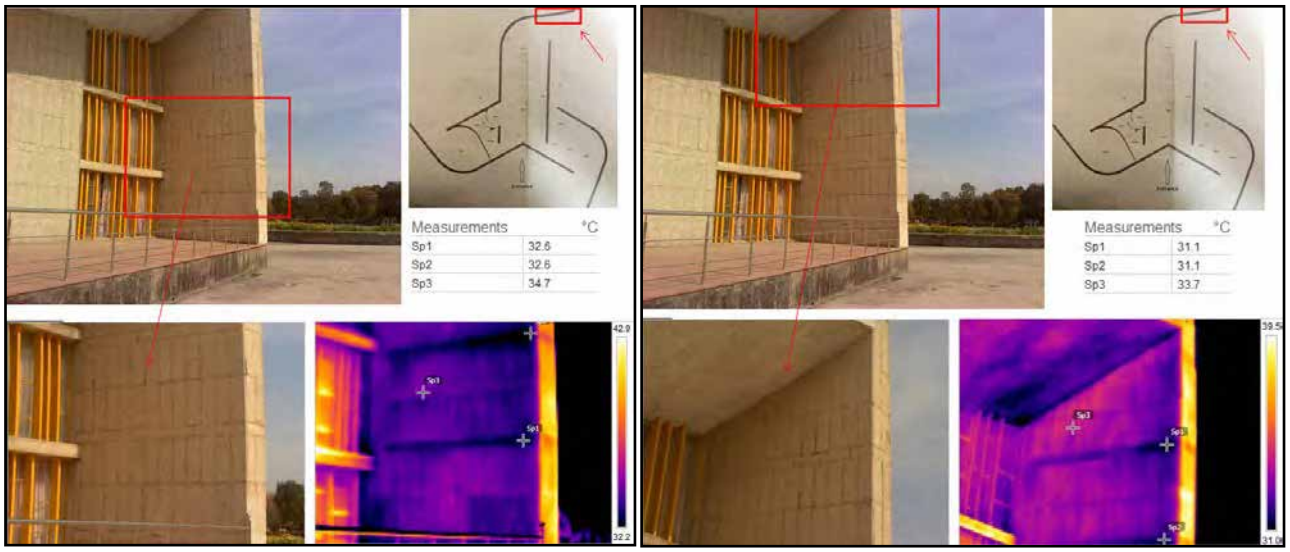


Figure 2.1

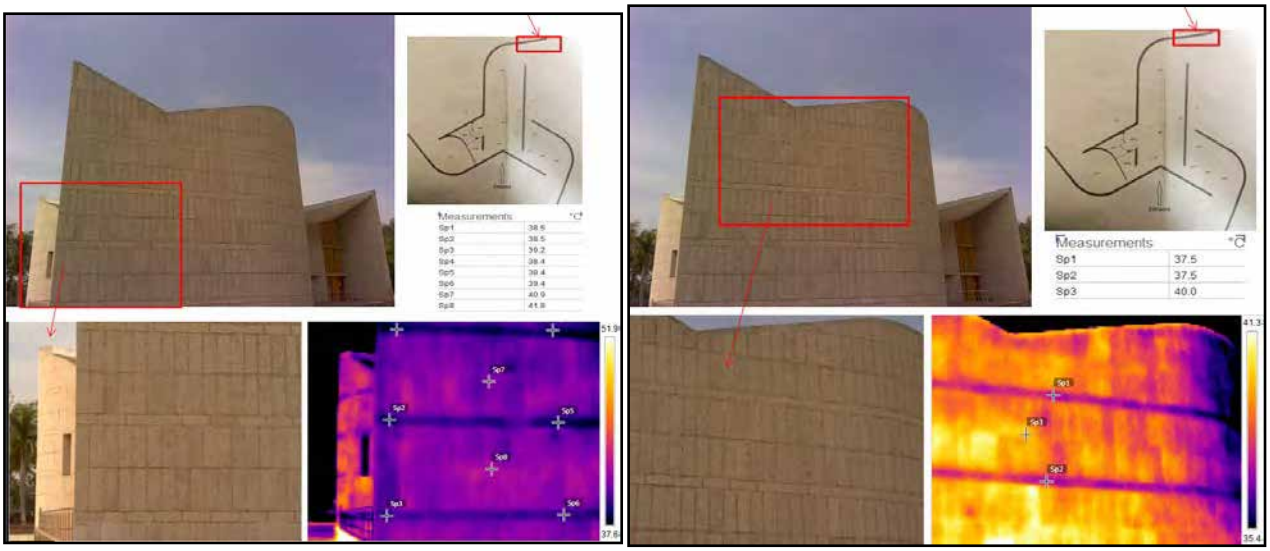


Figure 2.2

Figure 2.3 shows the RADAR scan taken on the wall along the highlighted portion and the IR image taken at the same location. The hyperboles seen in the RADAR scan correspond to the reinforcement present in the outer panel, the spacing between them being 0.22 m. Due to the absence of any other hyperbole, it can be confirmed that columns are not present at that location.

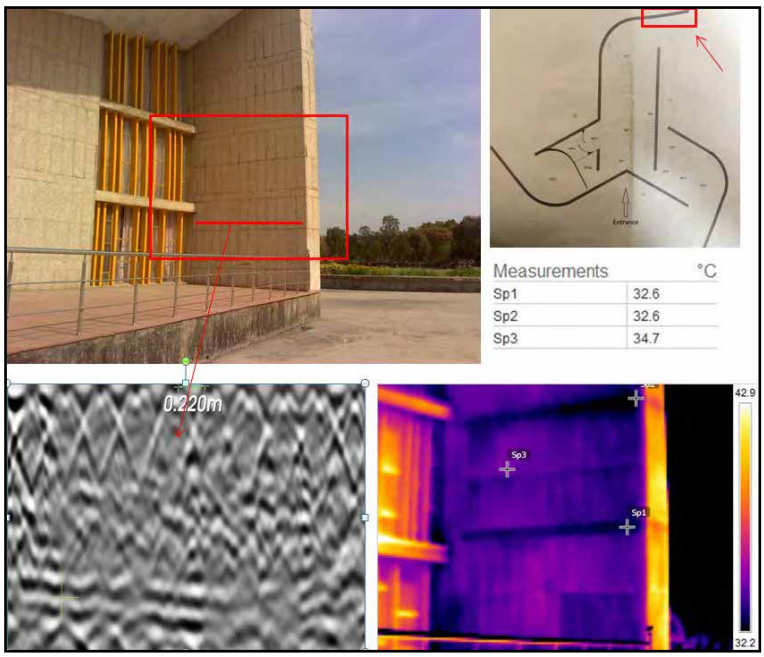


Figure 2.3

Figure 2.4 shows the IR images taken from the interior and exterior of the wall highlighted in the key plan. The images clearly show the presence of columns and beams at that location. The IR image of the exterior view was taken before sunrise (i.e. when the wall is radiating heat as the source), and hence the temperature of the columns and beams are recorded as higher than those of the other regions.

Figure 2.4

Figure 2.5 shows the RADAR scan taken on the wall along the highlighted portion and the IR image taken at the same location. The hyperboles seen in the RADAR scan correspond to the column reinforcements present in the wall, the c/c spacing between the columns being 3 m.

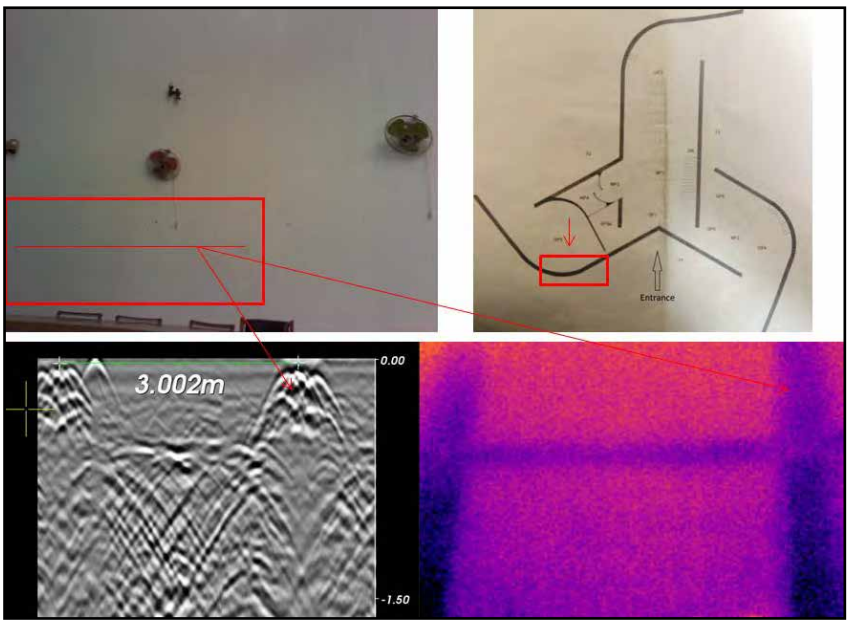


Figure 2.5

Figure 2.6 clearly shows the distribution of columns and beams in the walls highlighted in the plan.

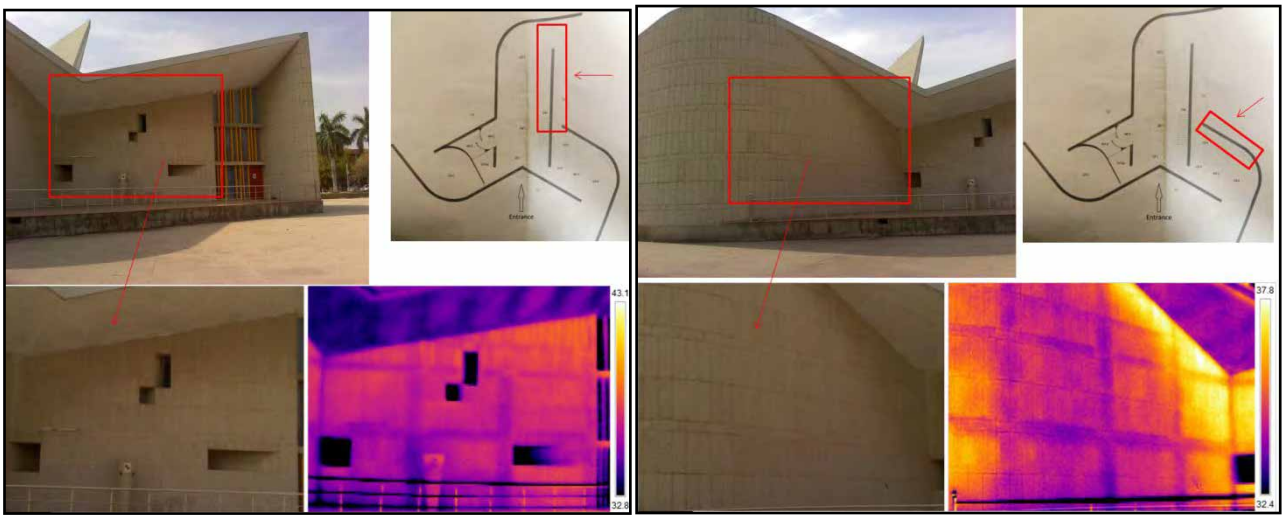


Figure 2.6

Figure 2.7 shows the end column at the location at which the wall is curved.

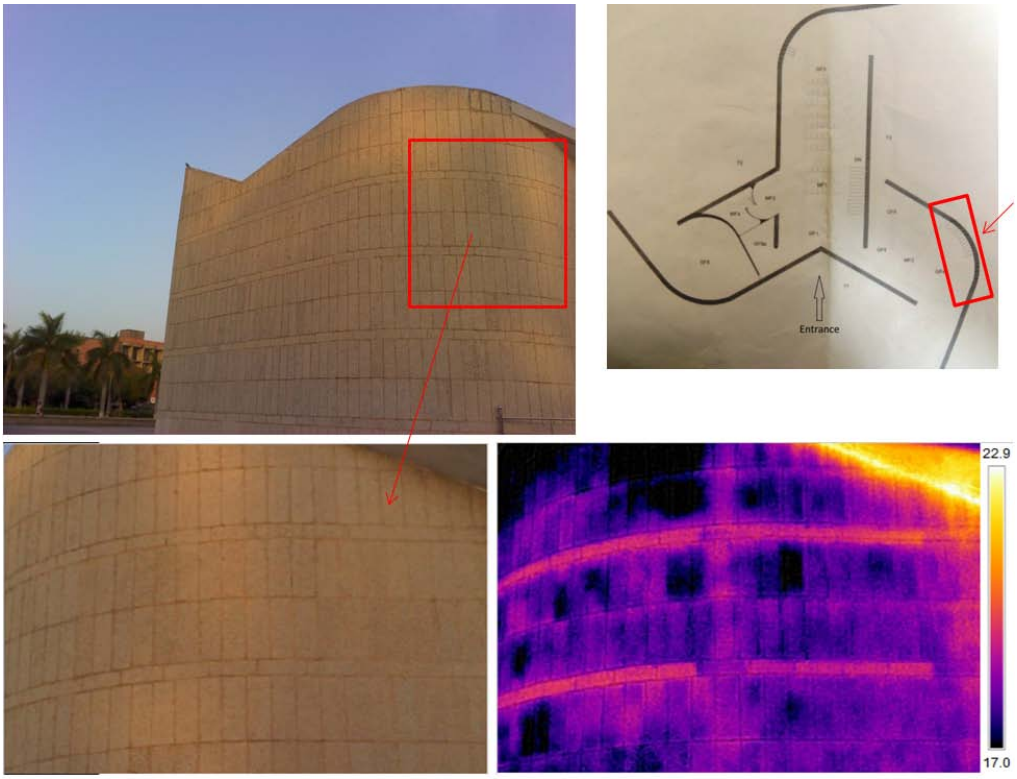


Figure 2.7

Figure 2.8 shows that the columns are not present after the curved portion of the wall.

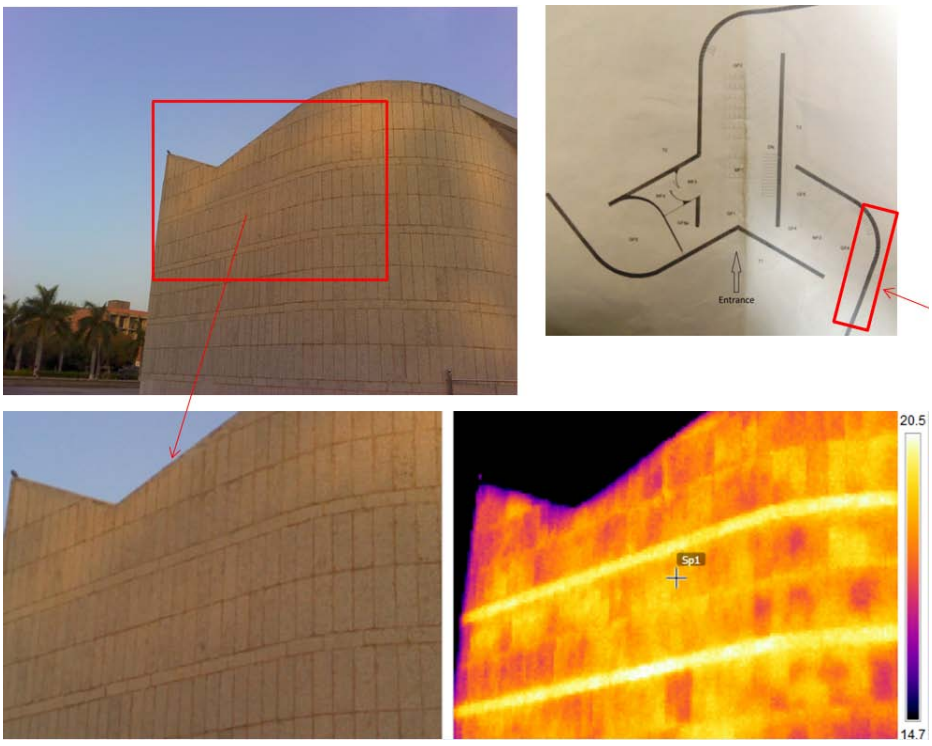


Figure 2.8

From the IR images and RADAR scans the distribution of the structural system is obtained as shown in the figure2.9. The red squares represent the locations of columns and the lines indicate the inverted beams on the roof. The structural system thus predicted aligns well with structural drawings of the building.

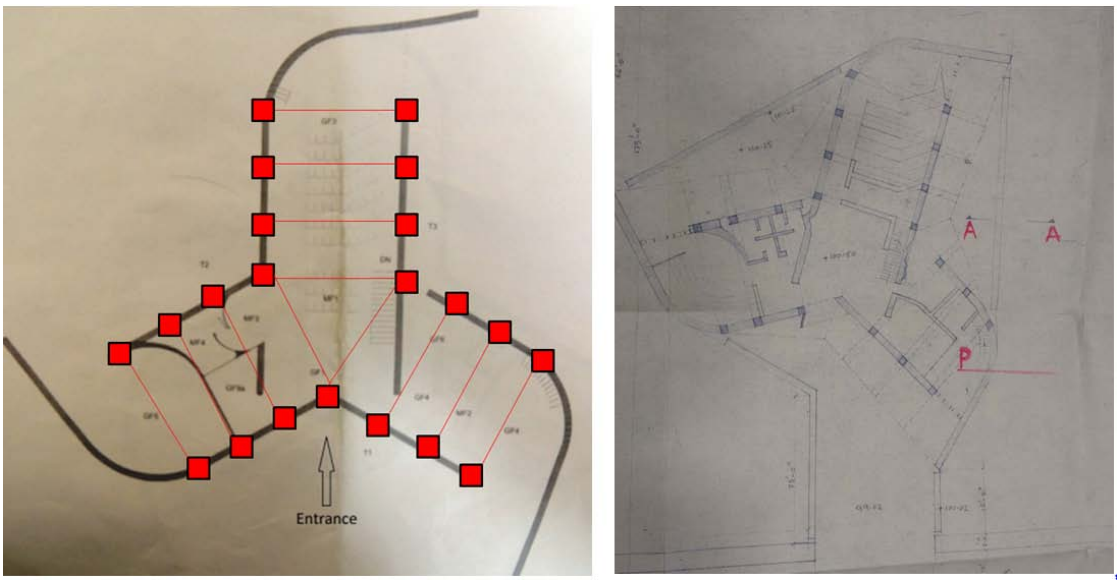


Figure 2.9

3 IDENTIFATION OF ROOF STRUCTURE USING IR IMAGES

Figure 3.1 shows the cross section and plan section of the roof of the structure. The images were obtained from structural drawings of the Gandhi Bhawan building (archives).

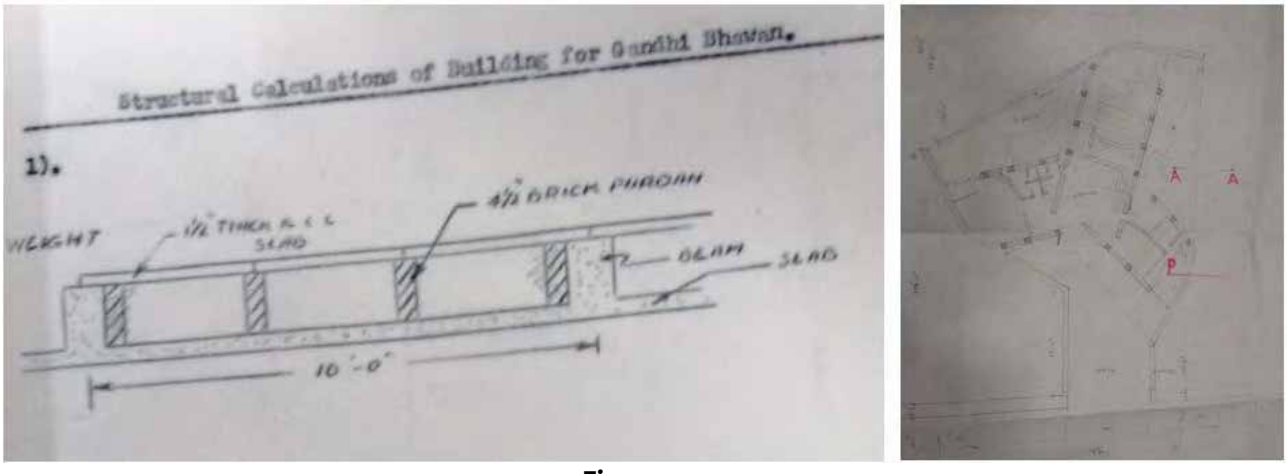


Figure 3.1

IR scans taken from above and below the roof of the structure confirm the presence of reinforced concrete beams and brick stiffeners in the roof. However the total number of beams and stiffners seen in the IR scans are less than that suggested by the structural drawings.

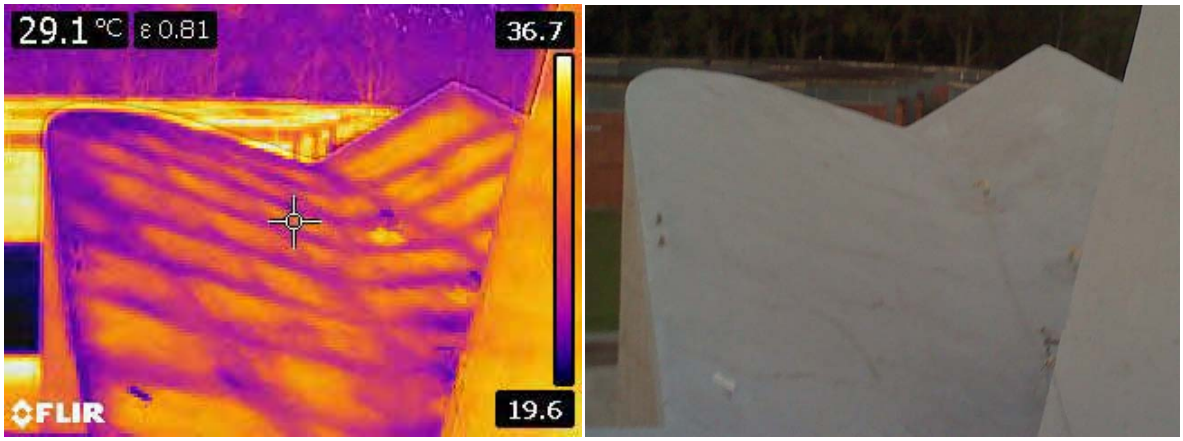


Figure 3.2 IR scan and Normal picture of roof from above

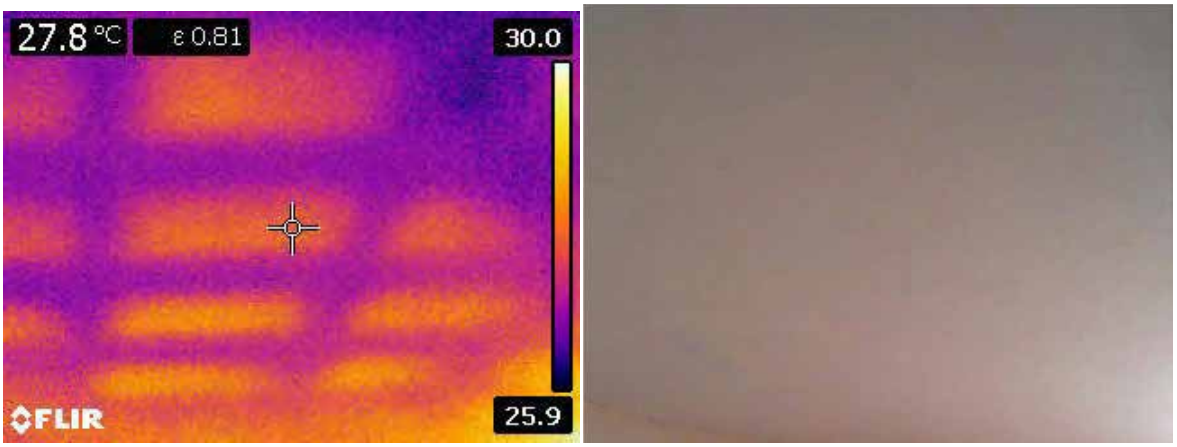


Figure 3.3 IR scan and Normal picture of roof from below

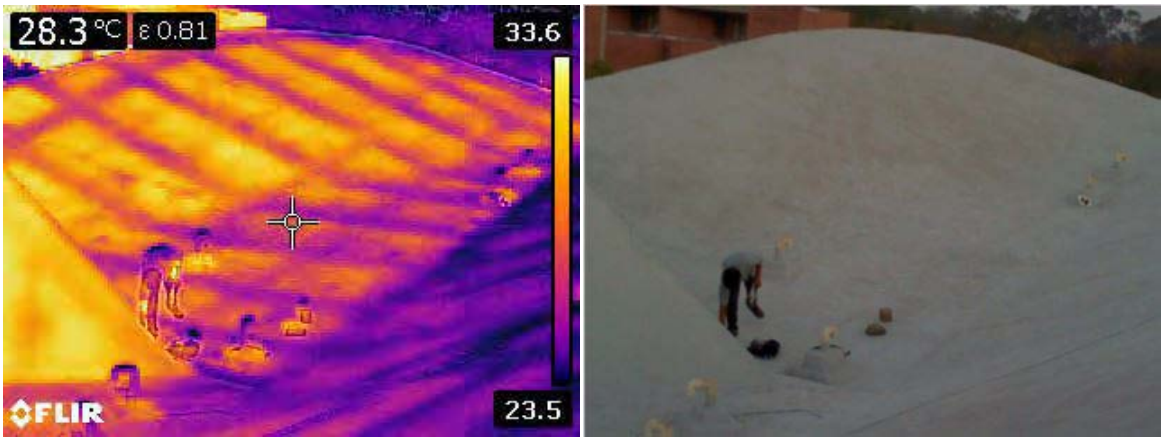


Figure 3.4 IR scan and Normal picture of roof from above

4 IDENTIFICATION OF PANEL REINFORCEMENT USING RADAR SCANS

RADAR scans were taken at five different locations of the structure using a 0.9 GHz antenna out of which, three scans were used to locate the steel reinforcement in the panel and the other two were used to identify the structural system of wall and roof. Figure 4.1 shows the locations where the RADAR scans were taken during the investigations.

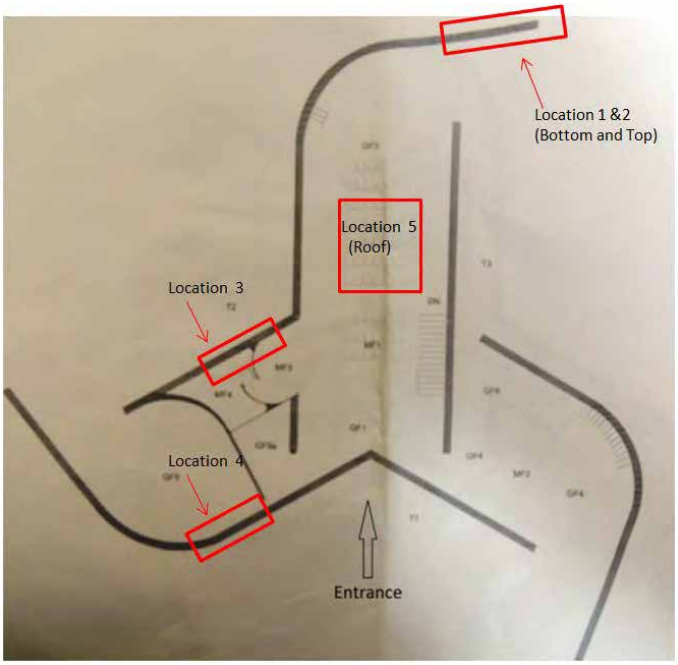


Figure 4.1 Locations of RADAR Scans

Location 1

A grid of size 3m x 1.8m with equal spacing of 0.15 m was marked on the wall as shown in Figure 4.2. RADAR scans were taken on the grid both in transverse and longitudinal directions. The RADAR scans clearly indicate the presence, the spacing and the orientation of the reinforcement inside the panel.

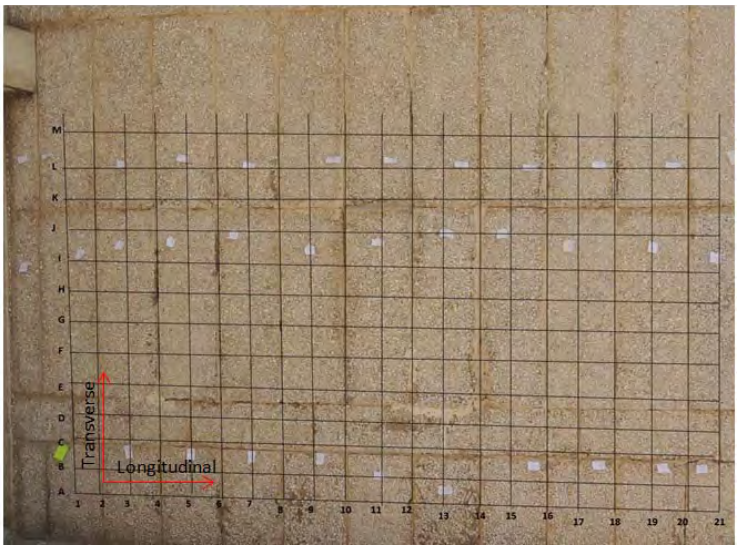


Figure 4.2 Grid marked for RADAR data acquisition at location 1

Figure 4.3 shows the longitudinal scan image, the presence of reinforcement can be clearly identified from the hyperbole seen in the image.The presence of two close hyperboles shows the presence of reinforcement at the edge of the panels.

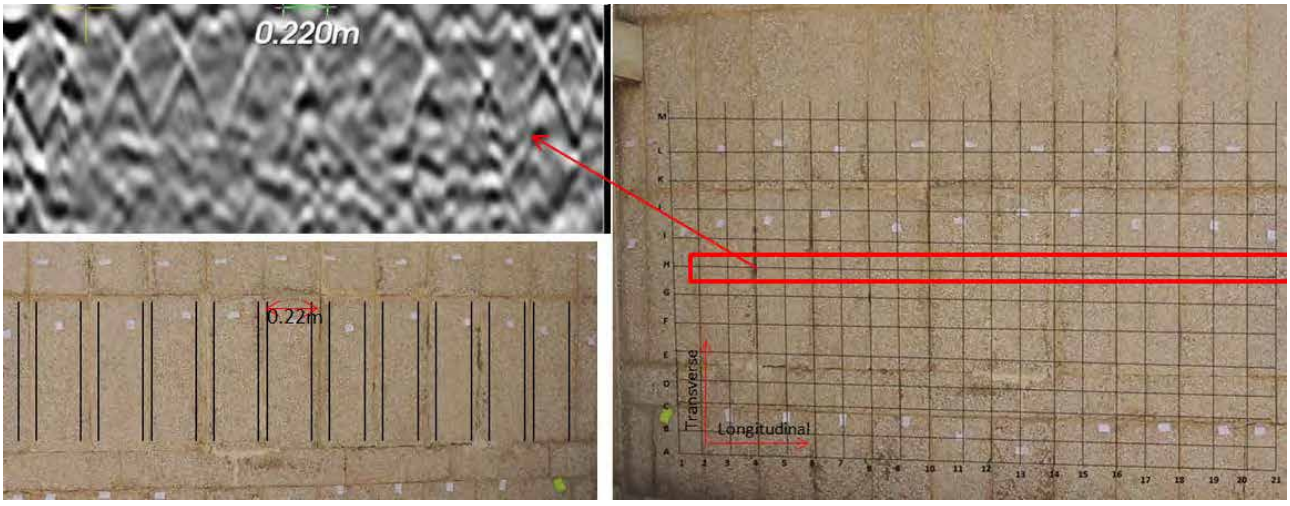


Figure 4.3 Longitudinal RADAR scan image at Location 1

In addition to the above result, Figure 4.4 shows the orientation of transverse reinforcement.

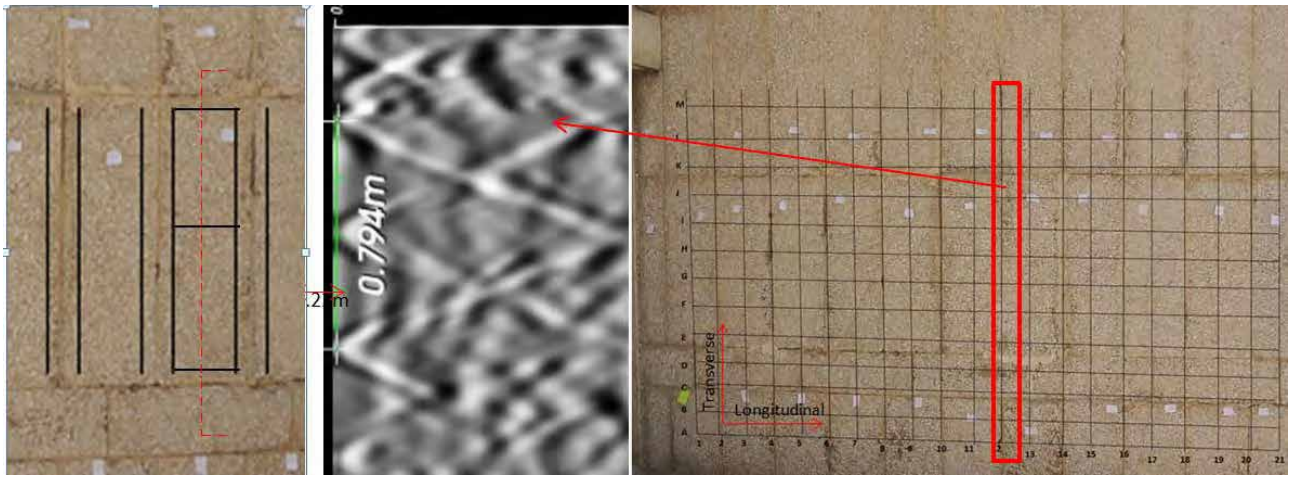


Figure 4.4 Transverse RADAR scan image at Location 1

Locations 3 and 4

RADAR scans from location 3 and 4 also confirm the same pattern of reinforcement present in the panel. Figure 4.5 shows both the transverse and longitudinal RADAR scans taken on location 3 where a grid of size 2.1m x 1.6m was made with equal spacing of 0.15 m in longitudinal direction and 0.2 m in transverse direction.

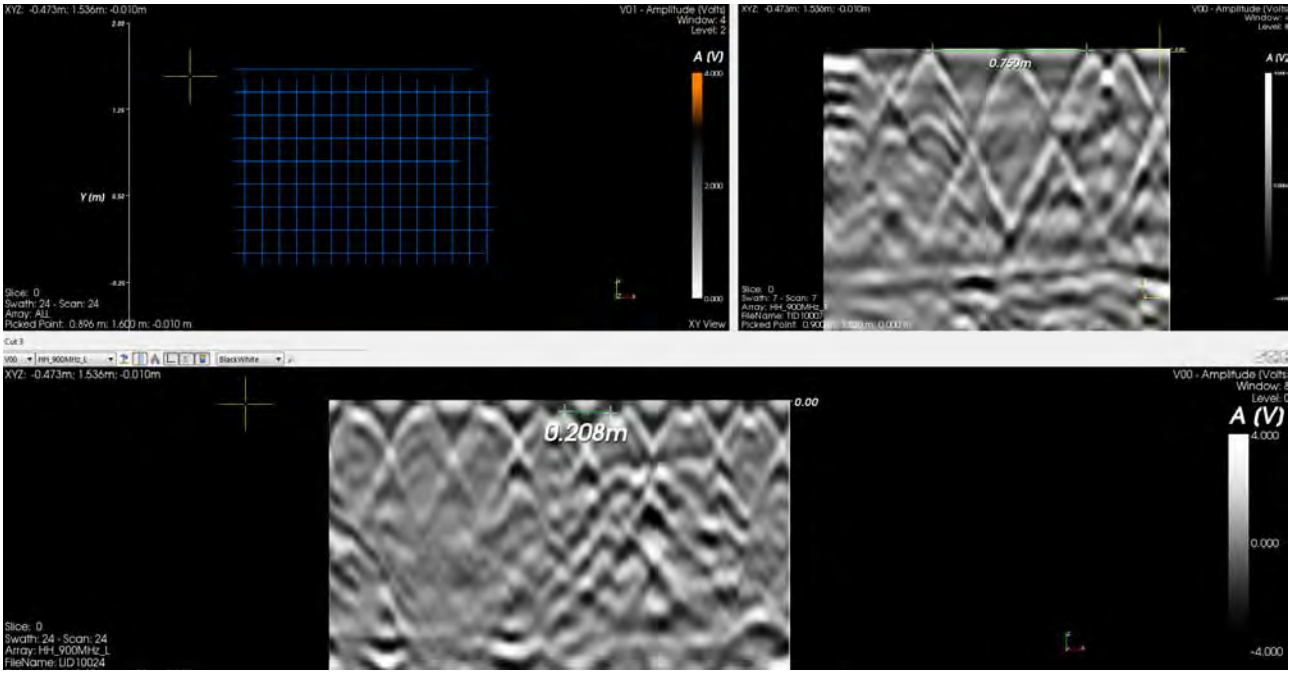


Figure 4.5 Longitudinal and transverse RADAR scan images taken at Location

5 INSPECTION OF SEEPAGE THROUGH ROOF

The roof was kept wet using damp hessian cloth for 24 hours. IR scans were taken on two locations of roof (from below) before and after the wetting of roof. No difference was observed in the two scans. This could be due to two possible reasons: (1) either the waterproofing work carried out in the recent past is effective; or (2) the process of wetting the roof slab with the damp hessian cloth is inadequate for allowing water or moisture to seep through the slab.

Before Wetting **After Wetting**

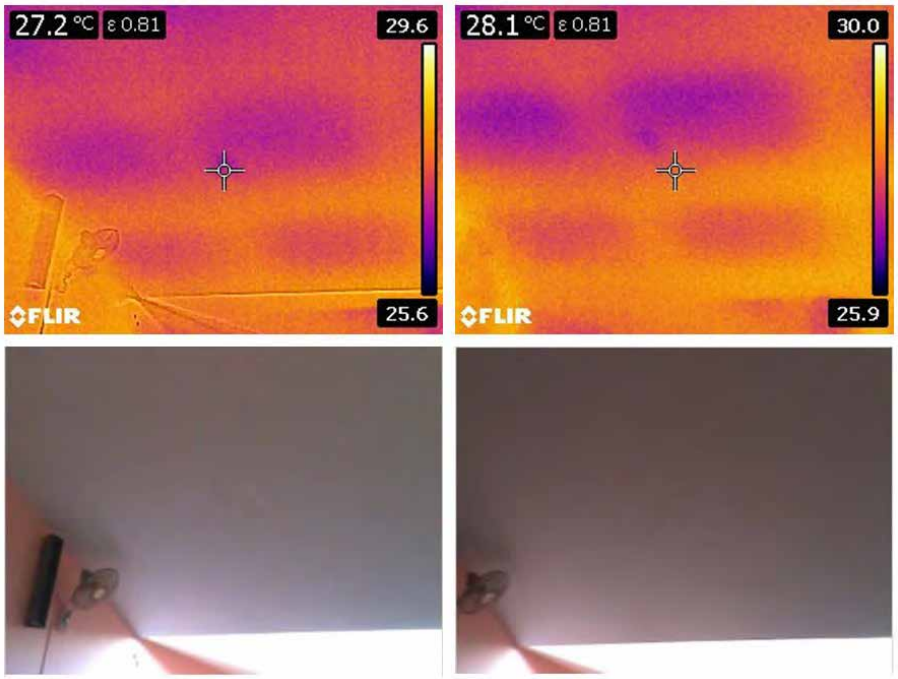


Figure 5.1 Location 1

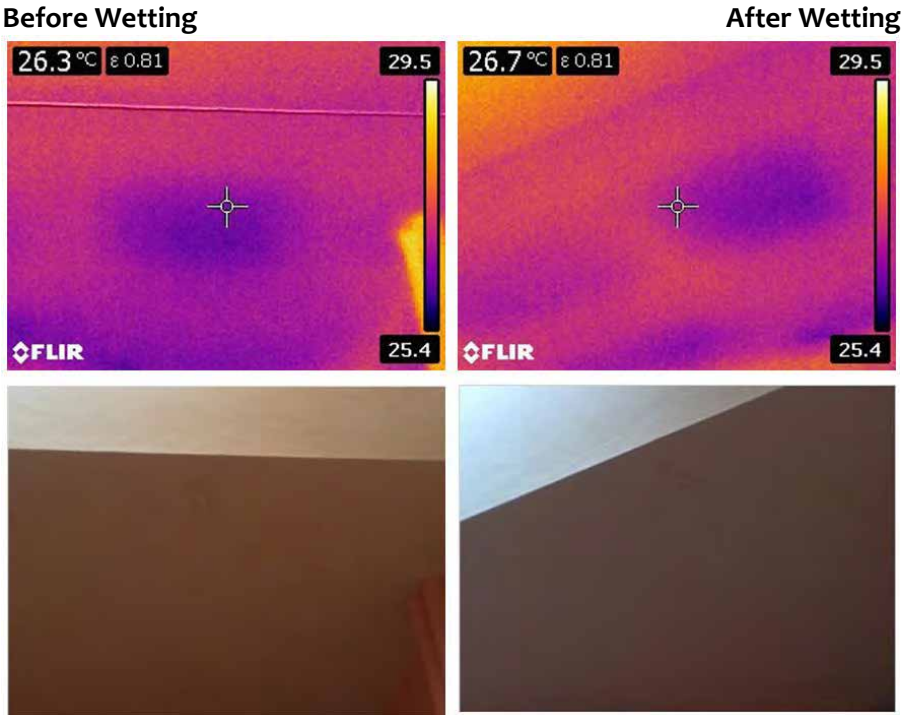


Figure 5.2 Location 2

Figure 5.3 shows certain differences in brightness that can be attributed to discoloration of the ceiling. For a proper assessment of the seepage, it would be advisable to do a thorough inspection soon after the monsoon season, including IR scanning.

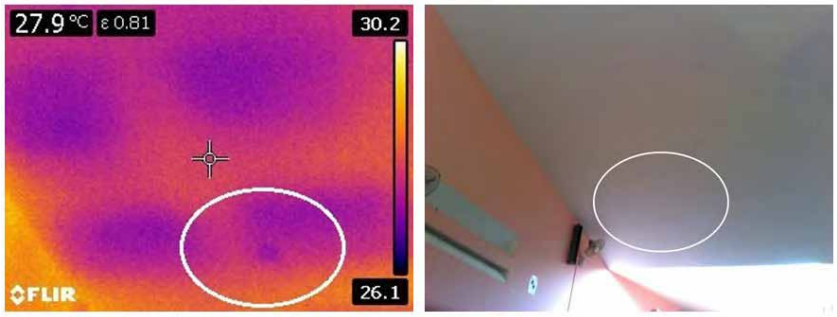


Figure 5.3

6 ASSESSMENT OF MORTAR AND CLAMP USED FOR FIXING PANELS

One of the clamps used for affixing the cladding panels to the brick masonry was removed and brought to IIT Madras for laboratory investigation. Energy dispersive X-ray analysis showed that the elemental composition indicated by the clamp material resembled that of Brass.

Small chunks of mortar were also brought to the lab for investigation. 5 samples of 20 g each were crushed using mortar and pestle in order to make a finely powdered sample for investigation. The sand content in the mortar was determined by acid dissolution as indicated below:

1. In a 250ml beaker, 20 g of powdered sample was taken and then 200ml of distilled water was added followed by 30 ml of 1N HCl.

2.The samples were kept immersed in the acid for 24 hr and the contents of the beaker were stirred from time to time.

3. After 24 hr the solution was filtered using Whatman 1 (11 micron) filter paper.

4.The residue along with filter paper was kept in an oven at 105 °C for 24 hr,following which it was cooled and then weighed.

5.For calculation of the sand content, the filter paper weight was subtracted from the weight measured in Step 4.

From the above procedure, an average sand content of 76% was determined for the mortar. In other words, the cement paste content was 24%. This was further analysed to determine the water and cement contents, as per the following procedure:

1.From the powdered mortar sample, 3 samples of 10 g each were taken in crucibles and kept in an oven at 105 °C for 24 hr,following which they were cooled and then weighed.

2. The crucibles were then kept inside a furnace at 1050 °C for 3hr and then cooled and weighed (time taken to reach 1050 °C was 2.5 hr and the sample was maintained at 1050°C for 3 hr – total time of 5.5 hr).

The difference in mass after oven storage gives the free water content, while the difference after furnace burning gives the bound water content in the sample.

Based on the above procedure, the water to cement ratio of the sample was found to be 0.8. The cement to sand ratio of the mortar was worked out from both the procedures to be about 1:6.

6 CONCLUDING REMARKS

1. More than 50 facade panels in Gandhi Bhawan are distressed.
2. IR scanning could be used to map distresses in facade panels of the Gandhi Bhawan building, but only in conjunction with other techniques of assessment, such as visual inspection, sounding, etc.
3. IR scans and RADAR scans confirm the presence of RC beams and columns as part of the structural system in the building, and these findings are commensurate with archival documents of architectural and structural drawings.
4. IR scans confirm the presence of a unique structural system in roof with air cavities. But the number of beams and pedestals observed are not commensurate with what is shown in archival structural drawings.
5. From the RADAR scans obtained from three locations, the distribution of steel reinforcement in the precast panel can be summarized as shown in figure below.

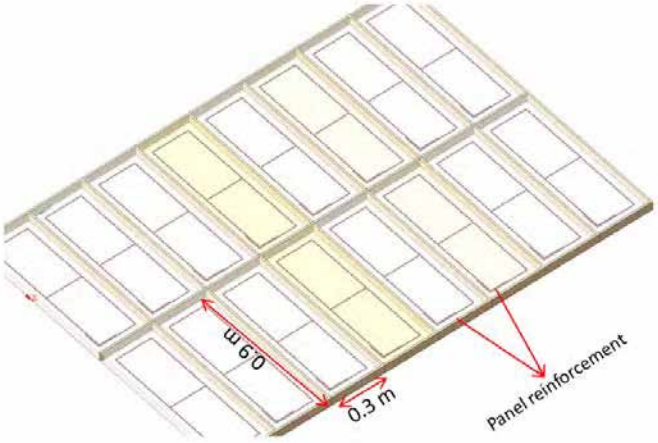


Figure 6.1

6. Current investigation suggests that there is no seepage occurring through roof. The roof should however, be investigated again soon after the monsoons for signs of seepage.
7. Brass clamps have been used to affix the panels on to the brick masonry. A laboratory analysis of the mortar used for fixing the panels indicates a composition of 0.8 : 1 : 6 (water : cement : sand).

Assessment of Samples Obtained from Gandhi Bhavan in Panjab University

A total of 5 mortar / concrete samples were obtained for analysis of the composition from Gandhi Bhavan. These samples are described in Table 1 along with the tests performed on the same.

Table 1. Samples obtained from Gandhi Bhavan (Note: Sample Name is as per source nomenclature)

Sample Name	Nature of sample	Total wt of sample (g)	Tests performed
1. Pool Base	Concrete cylindrical core	671	w/c and sand content for mortar
2. Pavement around pore	Piece of broken concrete	297	w/c and sand content for mortar
3.Panel finished	Mortar with stone chips	165	1. w/c and sand content for mortar; 2. determination of aggregate type (i.e. siliceous or carbonate)
4.Panel Mortar	Only mortar	540	w/c and sand content for mortar
5.Terrazo (Internal Finish wall)	White mortar like material	35.53	w/c and sand content for mortar

The following procedure was adopted for the determination of w/c and sand content for the mortar fraction:

1. The sample was first weighed, and then crushed using a hammer to completely extract the coarse aggregate. After crushing, the weight of the coarse aggregate (after sieving the crushed materials through 4.75 mm) was determined.
2. For the mortar fraction (i.e. passing 4.75 mm), a pulveriser was used to completely powder these samples. From each set, at least 3 samples of 20 g (except Sample 5, where only 5 g could be used as the sample was small) were used for the acid dissolution test, and 3 samples of 5 g were used for the non-evaporable water content determination.
3. About 20 g of the sample was taken and put in a beaker with dilute HCl. It was kept immersed for at least 24 hours, and in between the contents were stirred in the beaker with a glass rod from time to time.
4. After 24 hours, the contents of the beaker were filtered through a filter paper, and the mass of the residue on the filter paper was measured - this is approximately the mass of the sand fraction of the mortar.
5. From the mortar fraction obtained in Step 1, about 5 g from each of the samples was taken, and stored inside a 105 ^{o}C oven for 24 hours, after which the mass was again measured. The sample was then put inside a furnace at 1000 ^{o}C for 3 hours, removed and allowed to cool down and then the mass was measured again. The difference in masses at 105 and 1000 ^{o}C was attributed to the non-evaporable water content.

For sample 3 alone, a few drops of hydrochloric acid were put on the surface of the aggregates. Siliceous aggregates do not show any reaction to HCl, but carbonate aggregates would show effervescence due to the reaction that liberates CO_2.

Based on the methodology adopted, the results obtained are presented in Table 2.

Table 2. Results of the w/c and sand content analyses

Sample Name	**Total wt. of sample (g)**	**Wt. of coarse aggregate after crushing (g)**	**Wt. of mortar fraction (g)**	**Sand fraction of mortar (%)**	**w/c**	**Remarks**
1. Pool Base	671	382	289	68.23	0.61	None
2. Pavement around pore	297	118	179	70.89	0.70	None
3.Panel finished	165	77	88	68.49	0.89	HCl produced effervescence; carbonate aggregate confirmed
4.Panel Mortar	540	0	540	77.07	0.89	None
5.Terrazo (Internal Finish wall)	35.53	0	35.53	7.03	0.77	Very less amount of sand; almost pure paste…

The method used for the test makes several assumptions, such as: (i) no water is lost due to evaporation, and the bound water content accounts for all the hydrated phases, (ii) the mortar fraction is properly pulverized, and (iii) the entire coarse aggregate fraction has been properly separated, because of which the ***result that is obtained is only indicative and not exact***.

Based on the above results, the approximate mix design of the concretes / mortars is presented in Table 3. (Note: W = water; C = cement; FA = fine aggregate; CA = coarse aggregate)

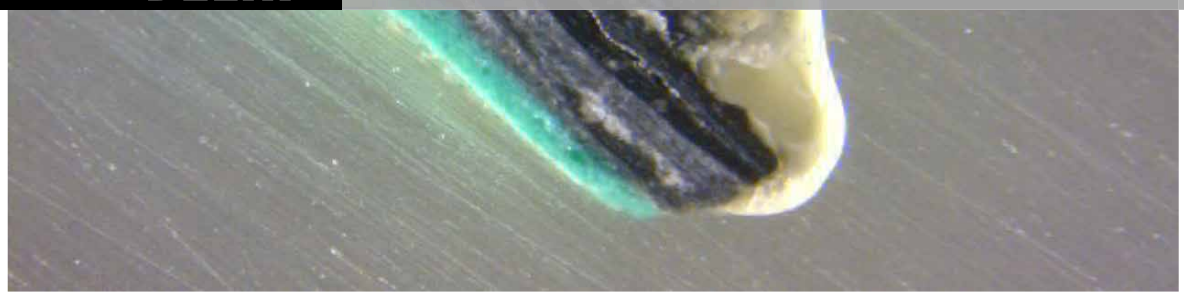
Sample Name	Type	Mix proportions by weight W : C : FA : CA
1. Pool Base	Concrete	0.61 : 1 : 3.5 : 7
2. Pavement around pore	Concrete	0.70 : 1 : 4 : 4*
3.Panel finished	Concrete	0.89 : 1 : 4 : 5*
4.Panel Mortar	Mortar	0.89 : 1 : 6.3
5.Terrazo (Internal Finish wall)	Mortar	0.77 : 1 : x[$]

* Obviously incorrect coarse aggregate fractions, because of small amount of sample

[$]Sand content was too small in the sample provided…

INTACH CONSERVATION INSTITUTE, DELHI

SAMPLE ANALYSIS: GANDHI BHAWAN, CHANDIGARH



INTACH Conservation Institutes
Dated: 7.11.2016

INTRODUCTION

The Gandhi Bhawan is a major landmark building in the city of Chandigarh, India. It was designed by the architect Pierre Jeanneret, a cousin of Le Corbusier. It is an auditorium hall that sits in the middle of a pond. A mural by the architect greets visitors at the entry. The words "Truth is God" is written at the entrance. Today it also houses a substantial collection **of books on Mahatma Gandhi.**

Gandhi Bhawan 1961, Chandigarh, India

The Gandhi Bhawan of Panjab University in Chandigarh is an architectural centerpiece of the campus and a stunning example of modernist architecture in India. This distinctive concrete building was the result of a 1960 proposal that a Gandhi Bhawan (Gandhi Center) be established at each university in India 'with the object of promoting the study of Gandhian ideals and his way of life.' Swiss architect Pierre Jeanneret's building used innovative cast concrete to evoke an abstracted floating lotus flower, marrying angular lines with swelling organic forms, all fittingly set into a large reflecting pool.

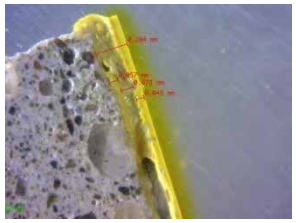
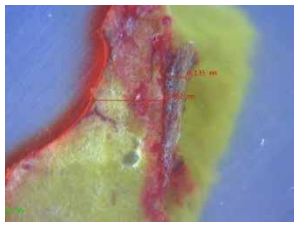
A **Getty Grant** will support an integrated and sustainable plan for the future management of the building, based on extensive background research, testing of materials, and technical analysis. The project will also build lasting capacity by supporting training workshops for experts of modernism in India, as well as for local professionals who care for the Gandhi Bhawan and other modern buildings in the region.

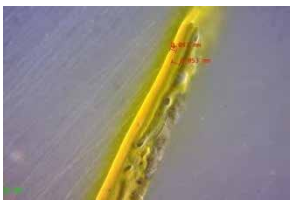
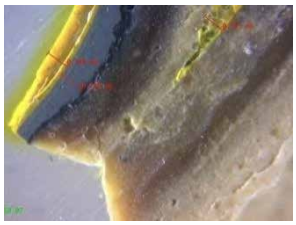
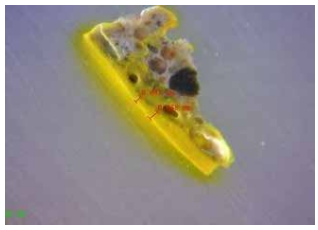
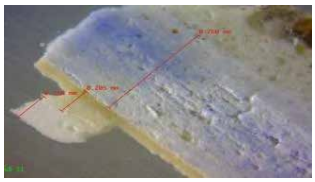
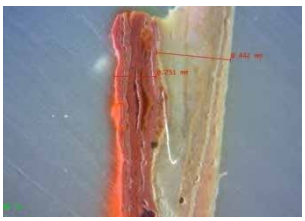
Paint samples from The Gandhi Bhawan, Chandigarh were received at the INTACH

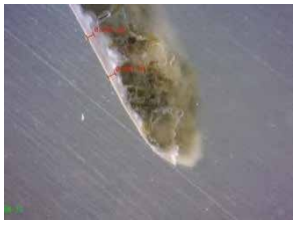
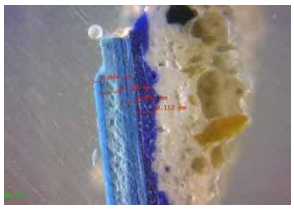
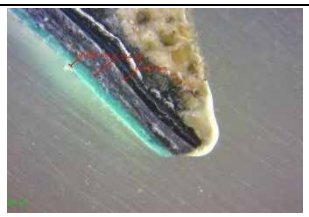
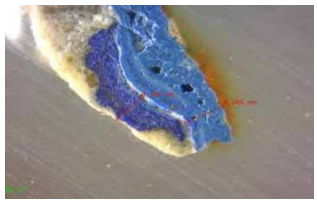
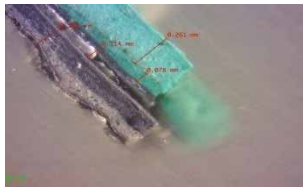
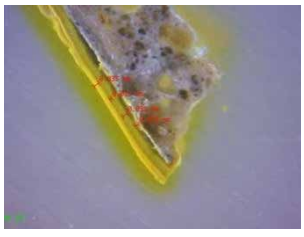
Conservation Institute (ICI), Delhi for the cross section analysis which only includes study of different layers present in these samples (stratigraphy).

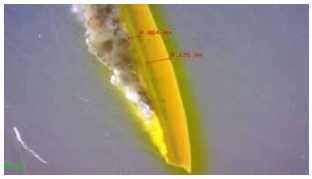
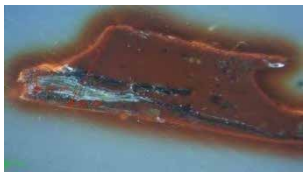
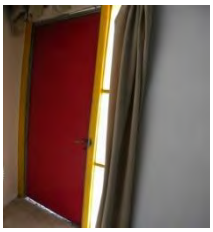
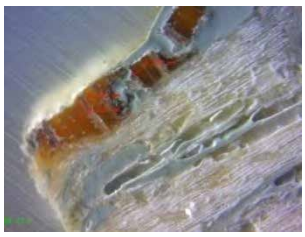
The minute samples were mounted in a block of resin, grounded and polished to prepare them for microscopic examination. The samples were observed under compound microscope with inbuilt light source and the images were clicked with the help of a digital microscope. The images were taken with two magnifications (x4 and x10) for the study.

Table showing location of the sample and their cross section image:

Sample code	Room Location	Sample location	Substrate	Photograph	Cross section image At x4
GB01	Director's Office (GF6)	Door Surround Interior	Concrete		
GB02	Director's Office (GF6)	Door Surround Exterior	Concrete		
GB03	Library (GF4)	Door Surround Exterior	Concrete		
GB04	Library (GF4)	Door Surround Interior	Concrete		
GB05	Director's Office (GF6)	Door Exterior	Wood		

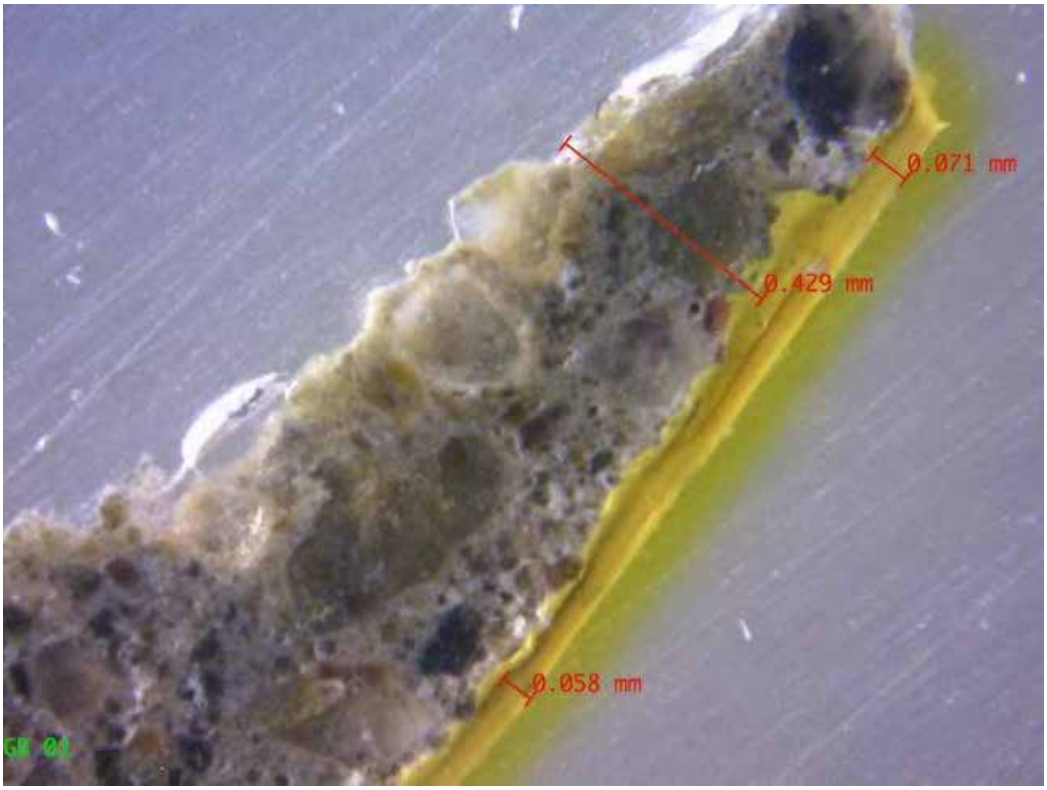
GB06	Auditorium (GF3)	Door Surround Exterior	Concrete		
GB07	Auditorium (GF3)	Elevation :3, Door Surround Exterior	~~Putty/~~ filling material		
GB08	Auditorium (GF3)	Door Surround Interior	Concrete		
GB09	Auditorium(GF3)	Wall Interior (Pink)	Concrete		
GB10	Auditorium (GF3)	Interior upper level (Blue wall)	Concrete		
GB11	Auditorium (GF3)	Interior (Pink) Parapet Wall	Concrete		
GB12	Auditorium (GF3)	Interior Skylight (Pink)Wall	Concrete		

GB13	Stairs (GF3)	Interior Hand Rail	Concrete		
GB14	Director's Office (GF6)	Interior (Blue) Wall	Concrete Plaster		
GB15	Entrance Lobby (GF1)	Interior (Pink) wall near pipes	Plaster on Concrete		
GB16	GF9	Cyan wall Store Mezzanine Floor	Plaster on Concrete		
GB17	Committee Room Interior (GF 5)	Blue wall	Plaster on Concrete		
GB18	GF9	Cyan wall rear cooler	Plaster on Concrete		
GB19	Committee Room (GF5)	Door Surround Interior	Concrete		

GB20	Committee Room Door Exterior (GF5)	Door Surround Exterior	Concrete		
GB21	Committee Room Door Interior (GF5)	Door Surround Interior	Wood		
GB22	Committee Room Door Exterior (GF5)	Door Surround Exterior	Wood		
GB23	Director's Office (GF6)	Door Interior	Wood		
GB24	Male Toilet (GF9)	Interior wall	Terrazzo finish on wall		SAMPLE NOT RECEIVED

Based on the visual examination further inferences were made for each sample.

Sample code: GB01

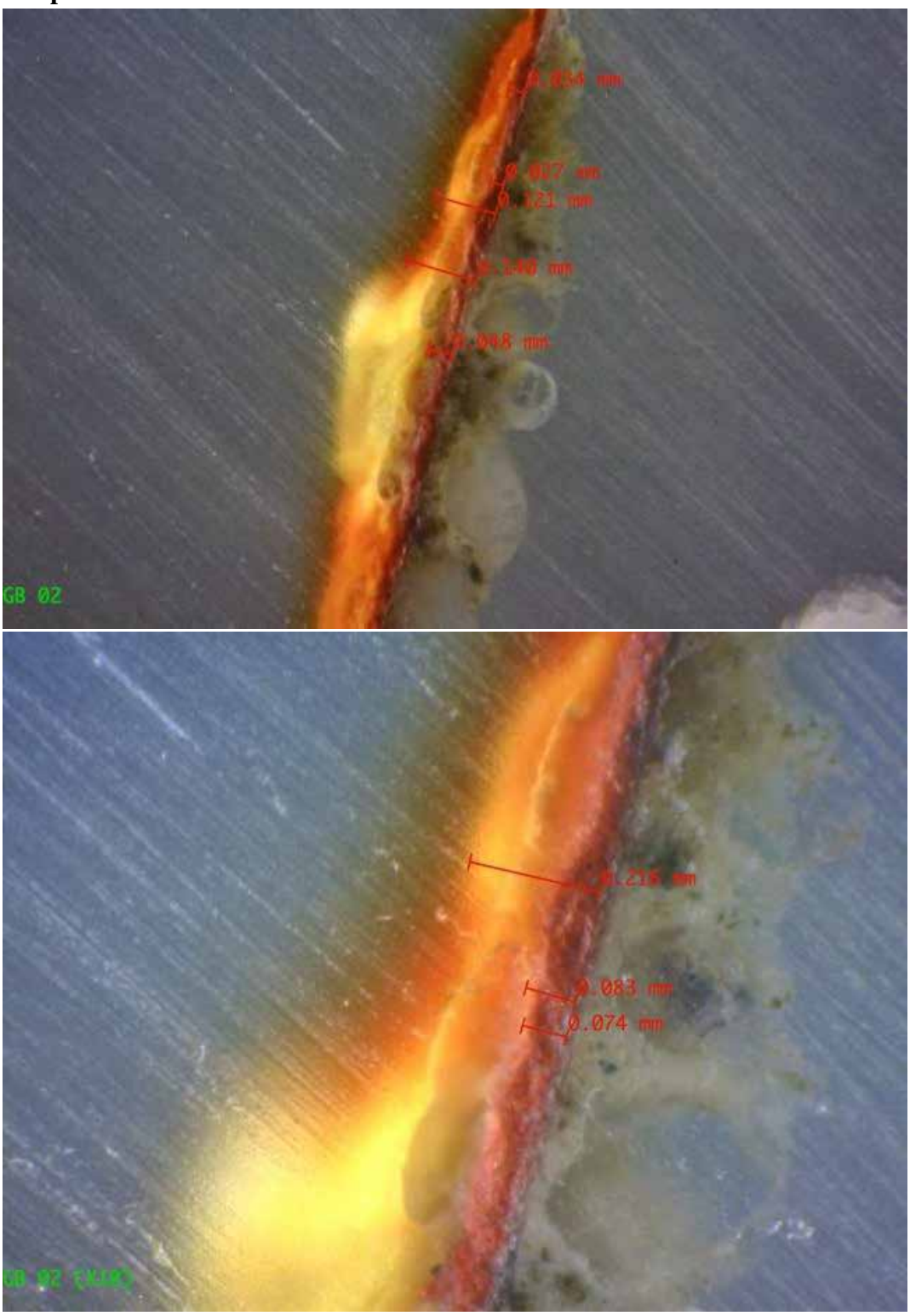


10 x magnification

- Two consecutive layers of yellow paint can be seen on both the magnifications.
- The 4x image is not showing clear evidence of ground layer.

- A thin and uneven ground of yellow color can be observed in 10x image. The two layers of yellow paint are clear.

Sample code: GB02

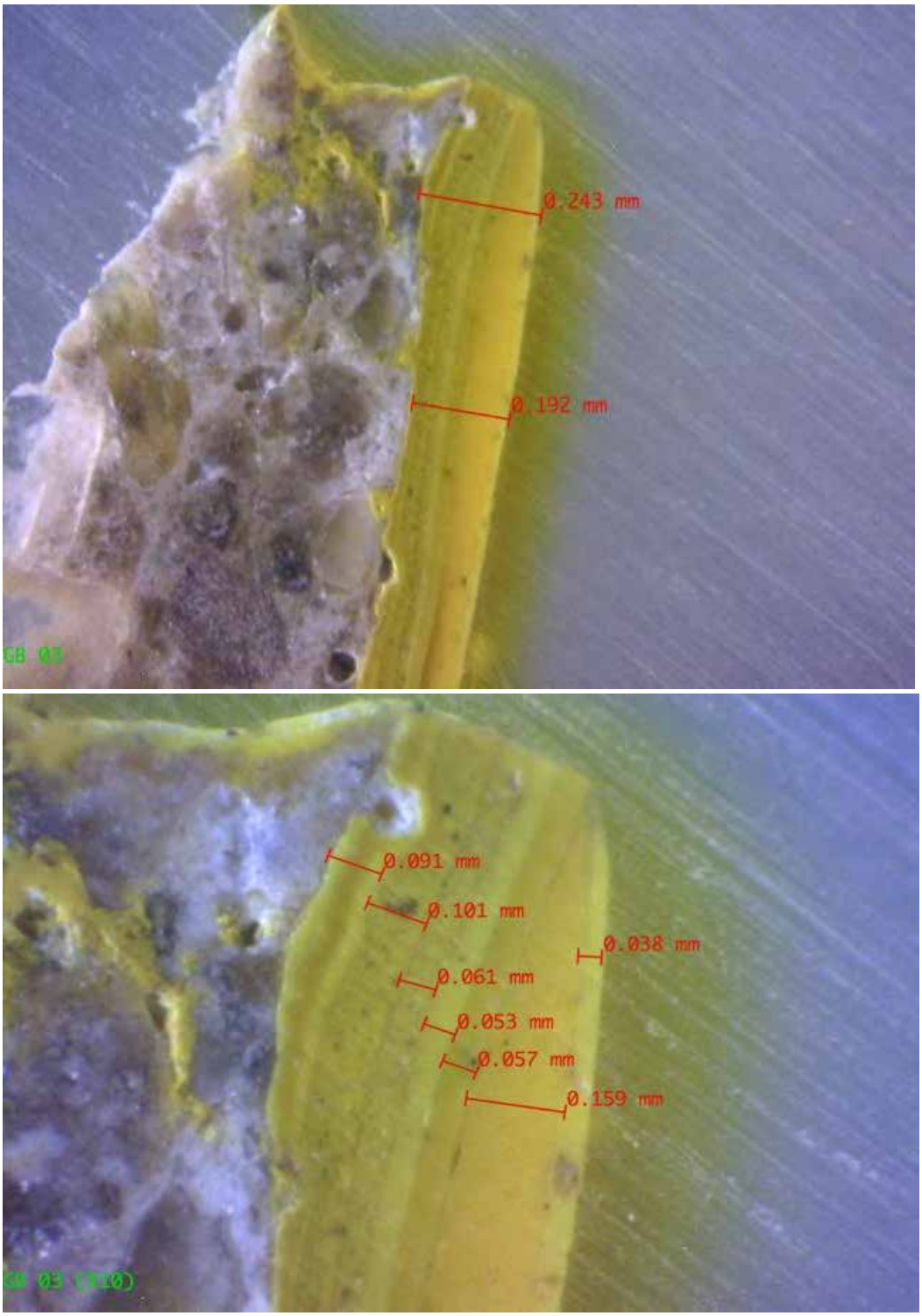


10 x magnification

- Fluorescence of yellow colour is visible in this particular sample, same illumination of yellow paint is visible where red and yellow both colors are present.

- On the external part of the sample luminescence can be seen.
- At 4x image no ground layer is visible.
- At 10x image same tone and even thin layer of ground appears to be present.

Sample code: GB03

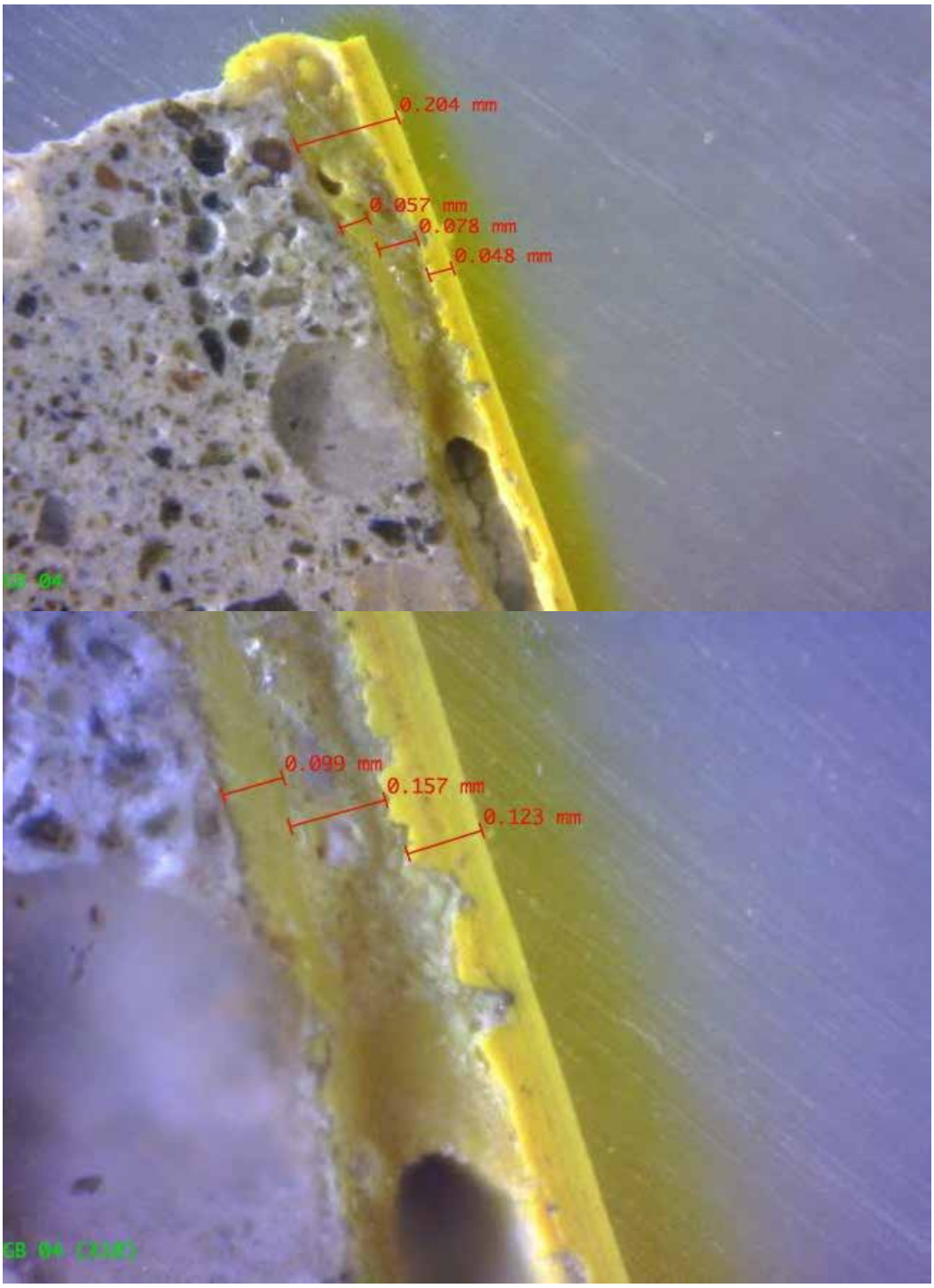


10 x magnification

- Two consecutive layers of yellow paint can be seen on x4 magnification.

- At 10x image, seven different layers of same color are visible suggesting over painting of the area with same color.
- The 4x image is not showing clear evidence of ground layer.
- Though a thin and uneven ground of yellow tone can be observed in 10x image.

Sample code: GB04

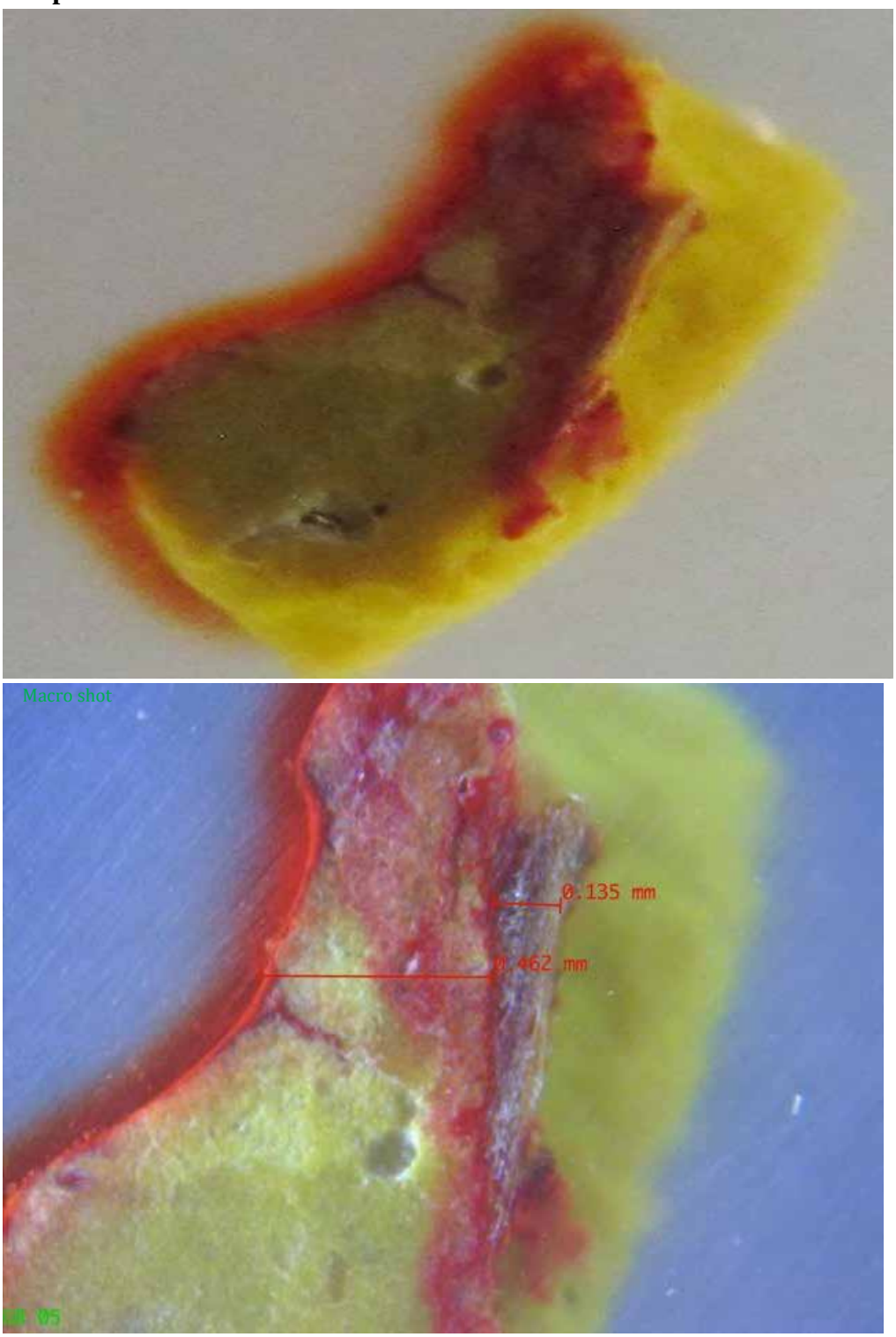


10 x magnification

- Three consecutive layers of yellow color can be seen in both the magnifications.

- At 10x image, some white contents are observed in middle layer suggesting it could be the filler or putty over the old painted surface.

Sample code: GB05

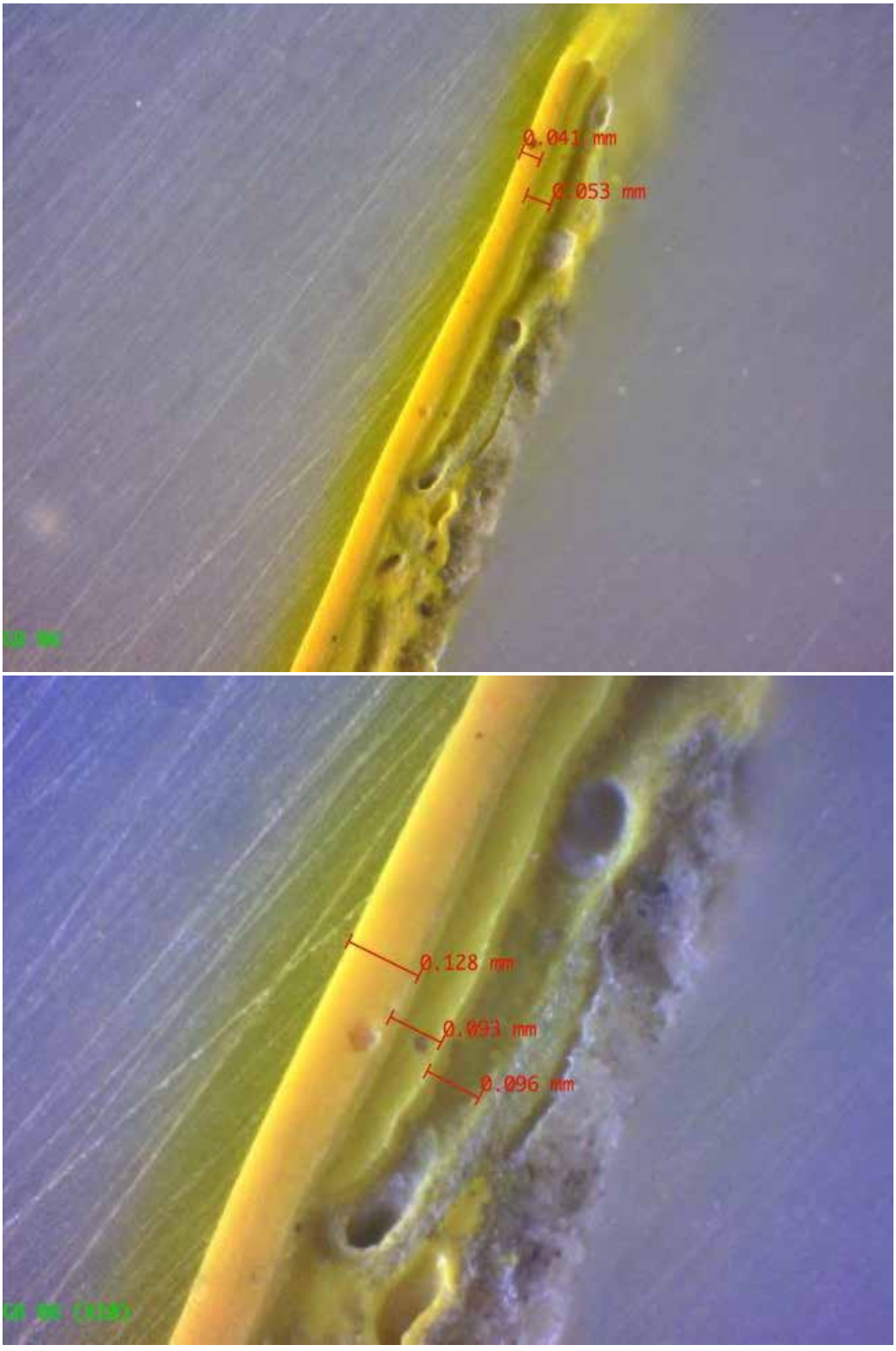


10 x magnification

- The yellow dense part appears to be a filling material or putty on the ply wood.

- A thin red layer is visible over the yellow layer which is the superficial layer or outer layer of the sample.
- A thin layer of ply wood is also visible in the sample.

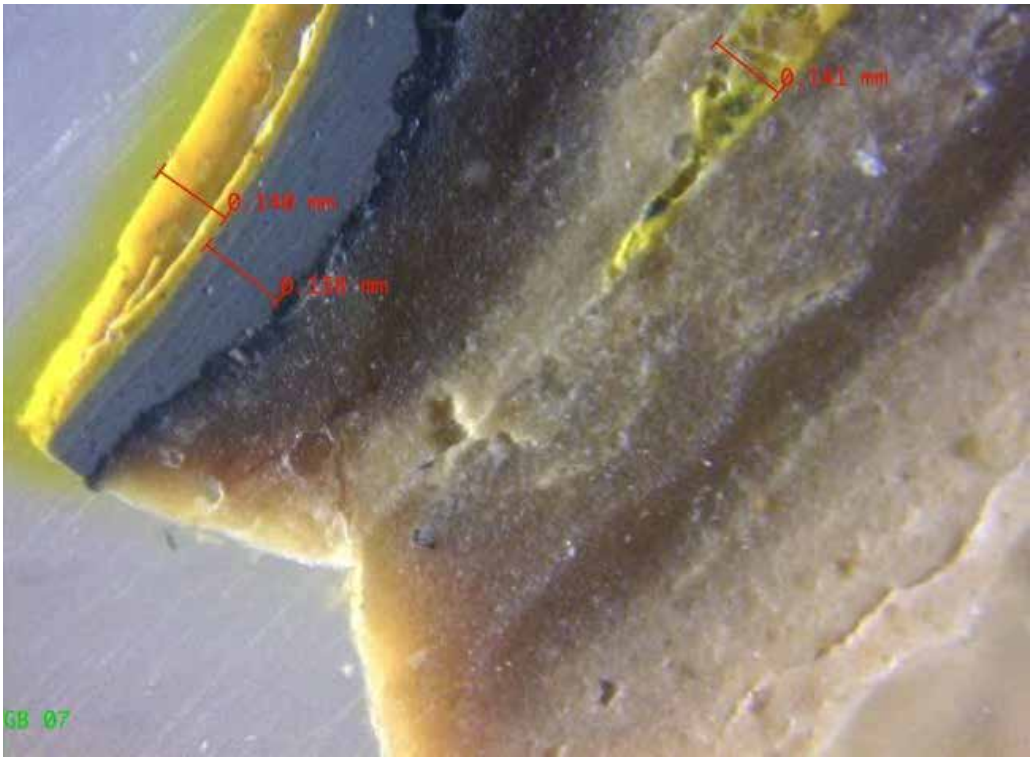
Sample code: GB06



10 x magnification

- Three consecutive layers of yellow color can be seen in both the magnifications.
- At 10x image the inner layer has some white content suggesting it could be the filler or putty over the old plaster.
- Only the outer layer appears to be the painted layer, other two seems to be the filling material.

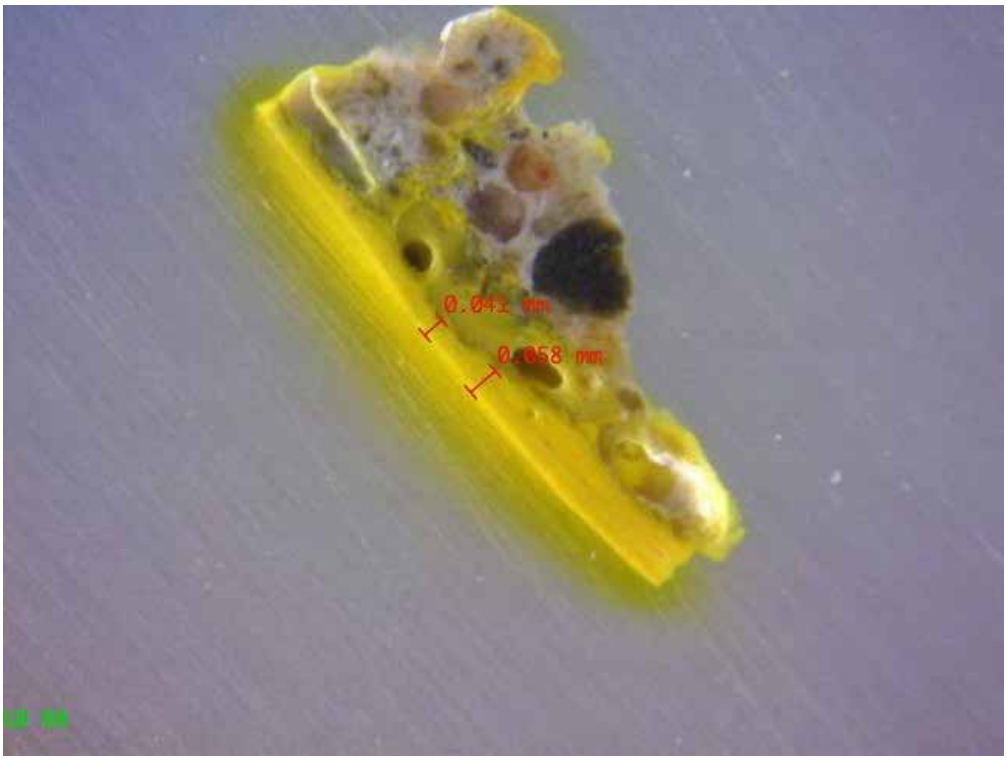
Sample code: GB07

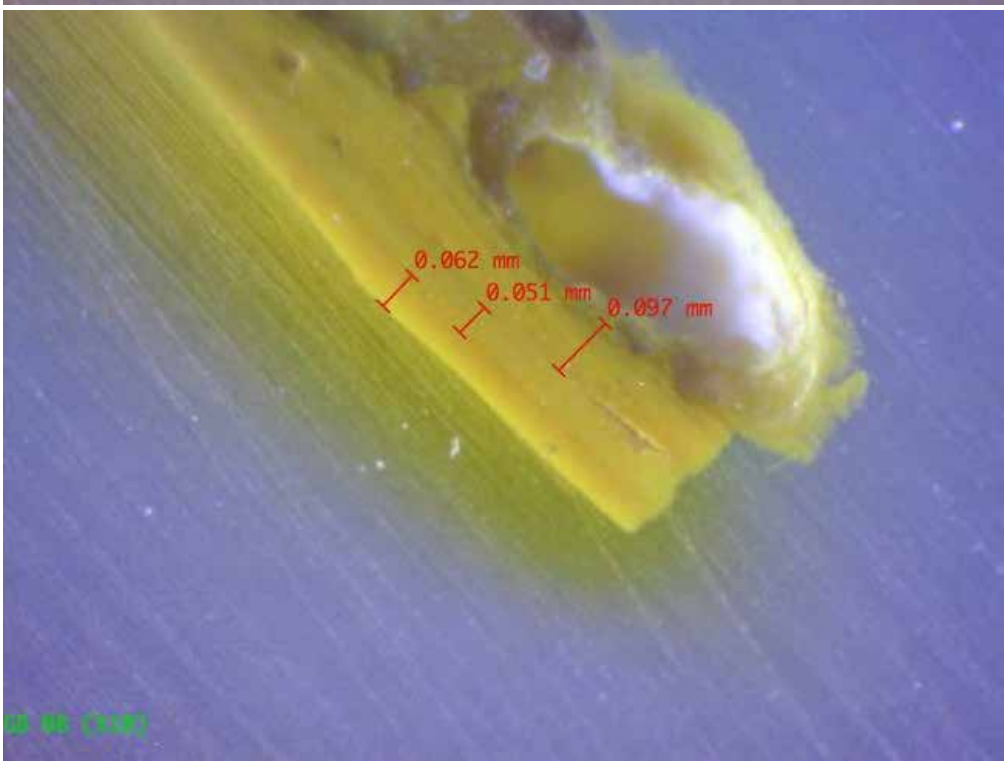


10 x magnification

- This sample shows presence of the ground layer over and underneath the older layer of paint.
- Two layers of yellow paint can be seen on both the magnifications.
- This suggests over painting of the area after some repair work was conducted on the particular wall or area.

Sample code: GB08

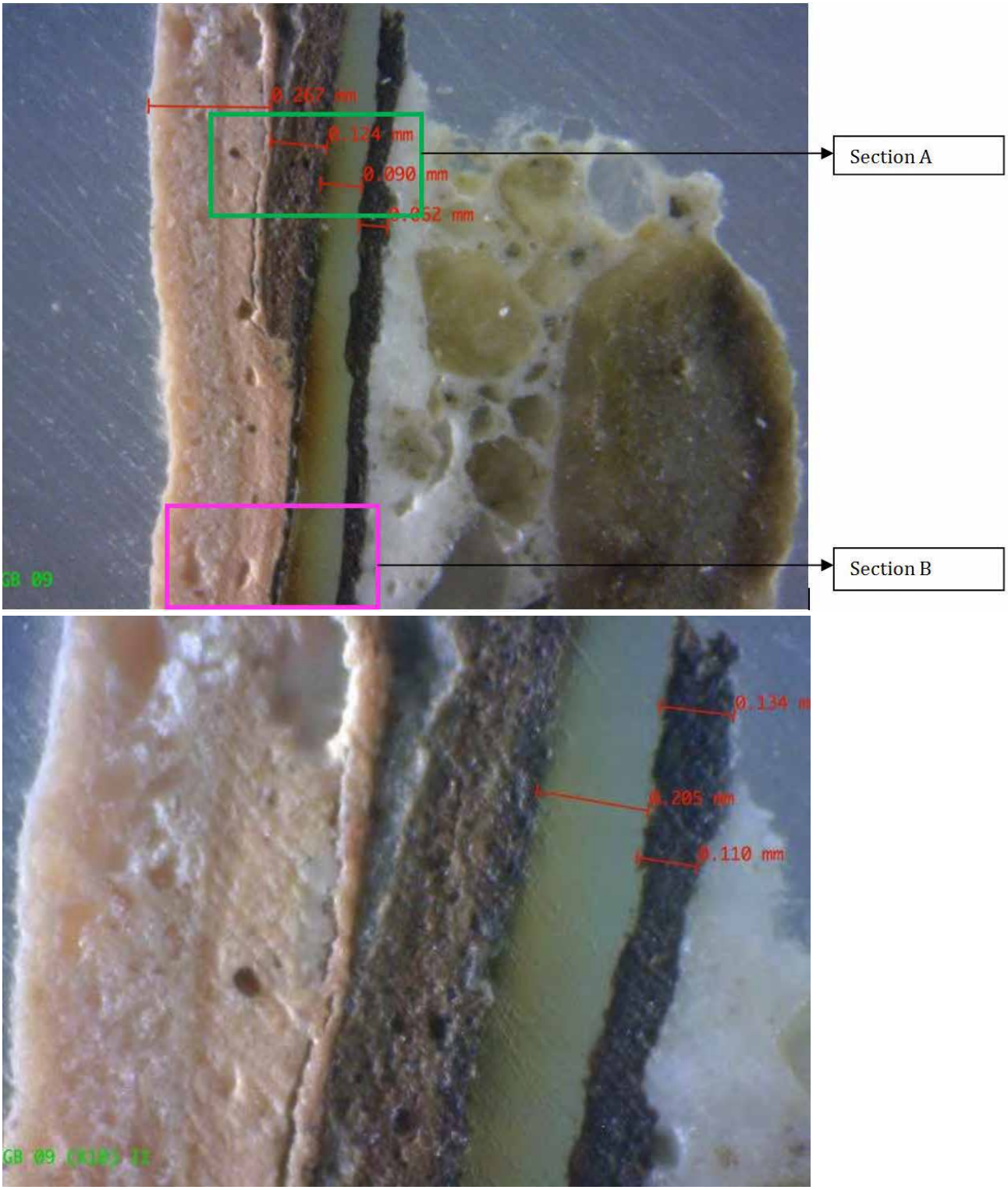




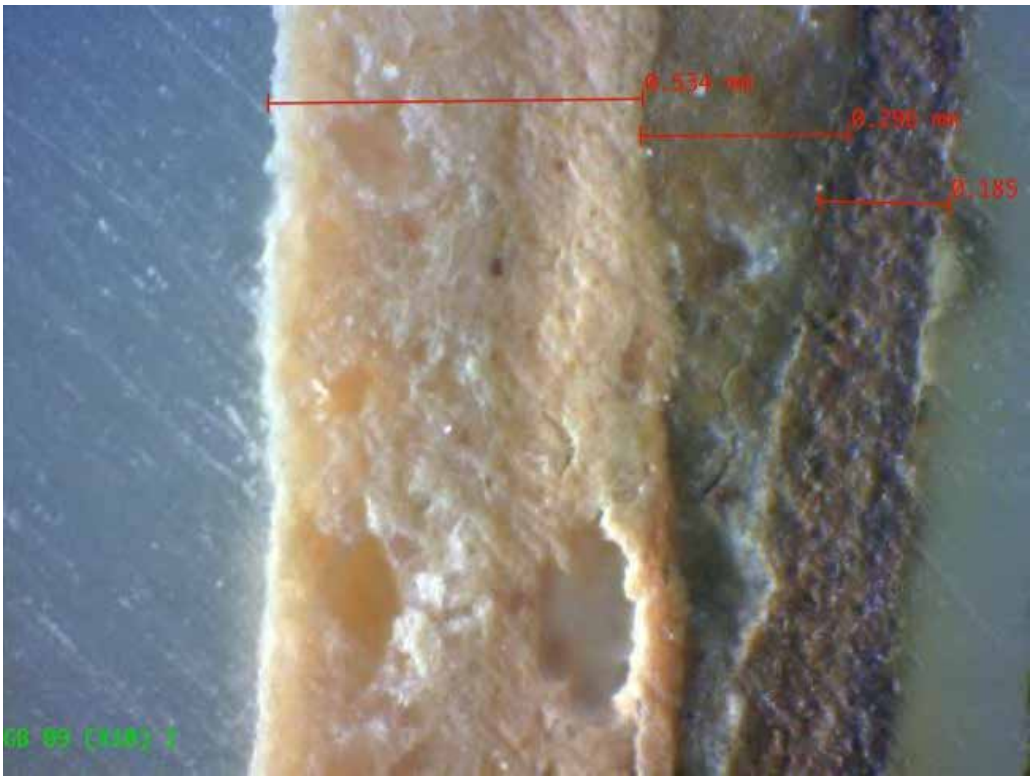
10 x magnification

- Two consecutive layers of yellow color can be seen in 4x image.
- The 4x image is not showing clear evidence of ground layer.
- Though a thin and uneven ground of yellow color can be observed in 10x image in which three layers of yellow paint is quite evident.

Sample code: GB09



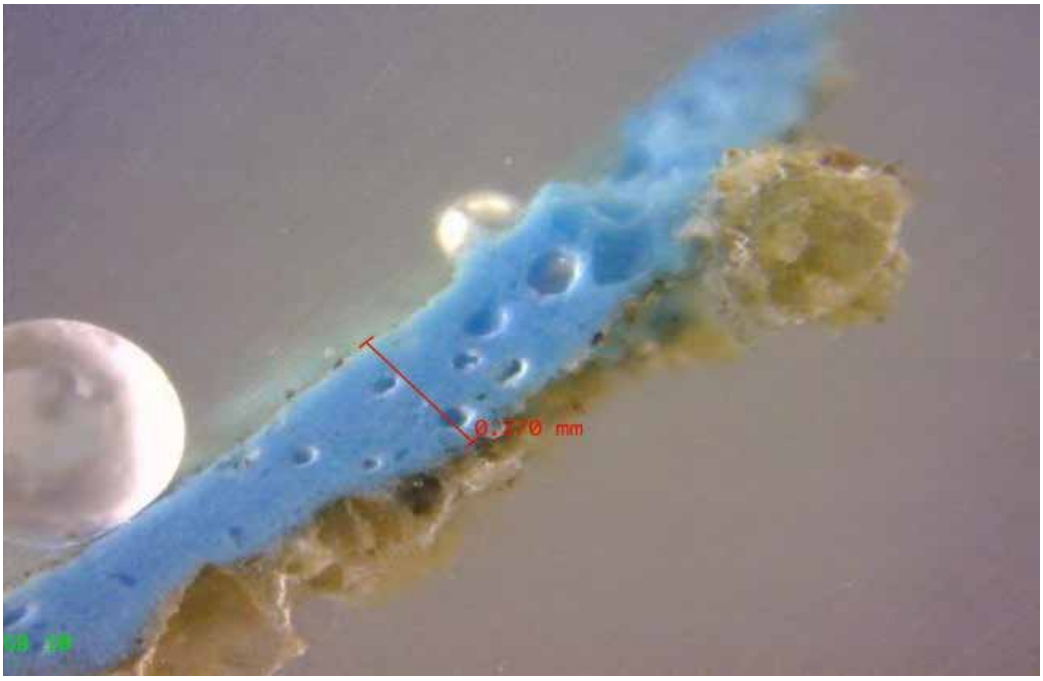
Section A: 10x magnification

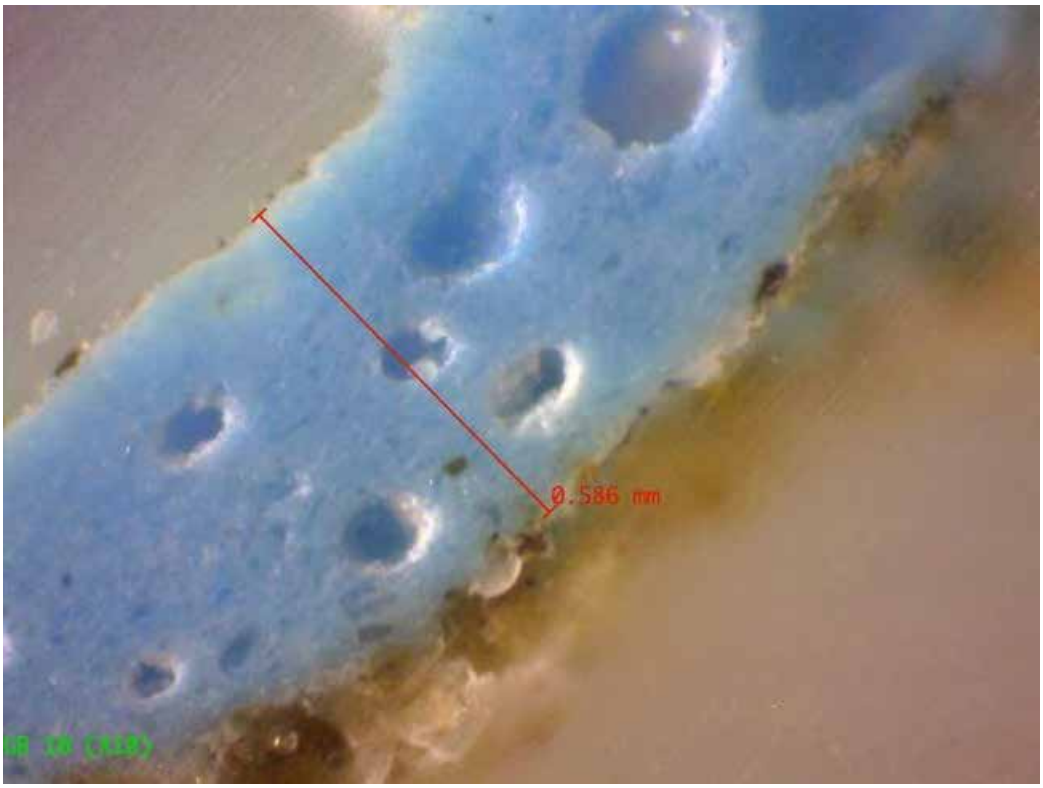


Section B: 10x magnification

- An initial layer of dark color appears directly onto the plaster.
- Over it a ground layer for the even finish is visible.
- Thereafter same dark color paint layer is visible.
- Over it a layer of pink chiffon color is visible, which is the current color of the wall.

Sample code: GB10

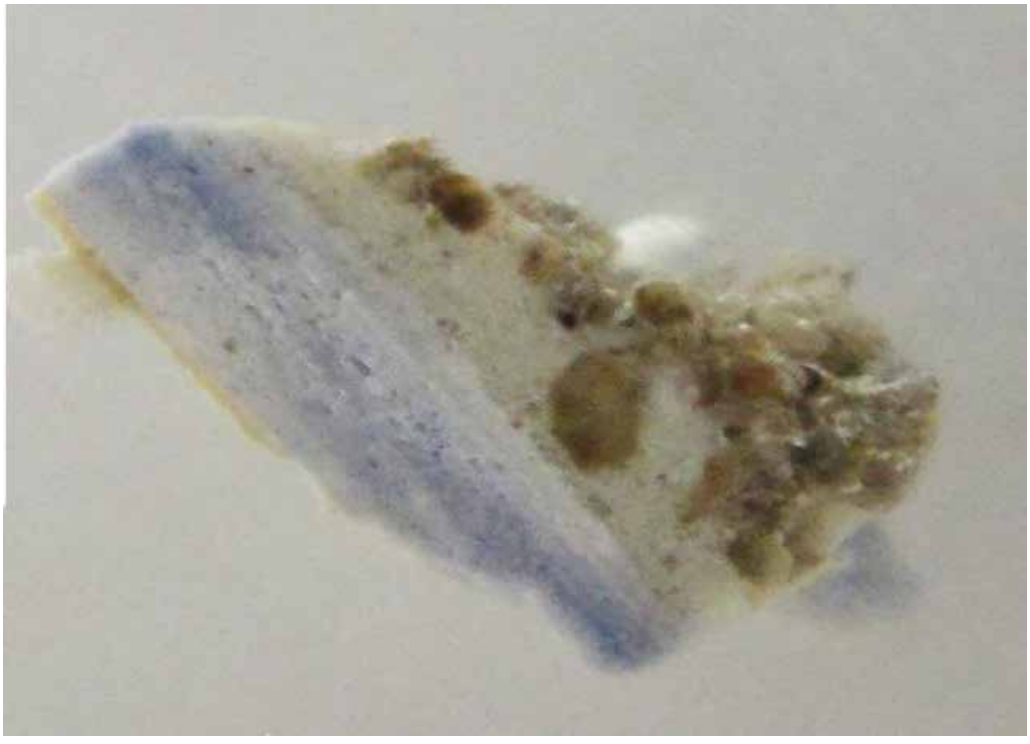


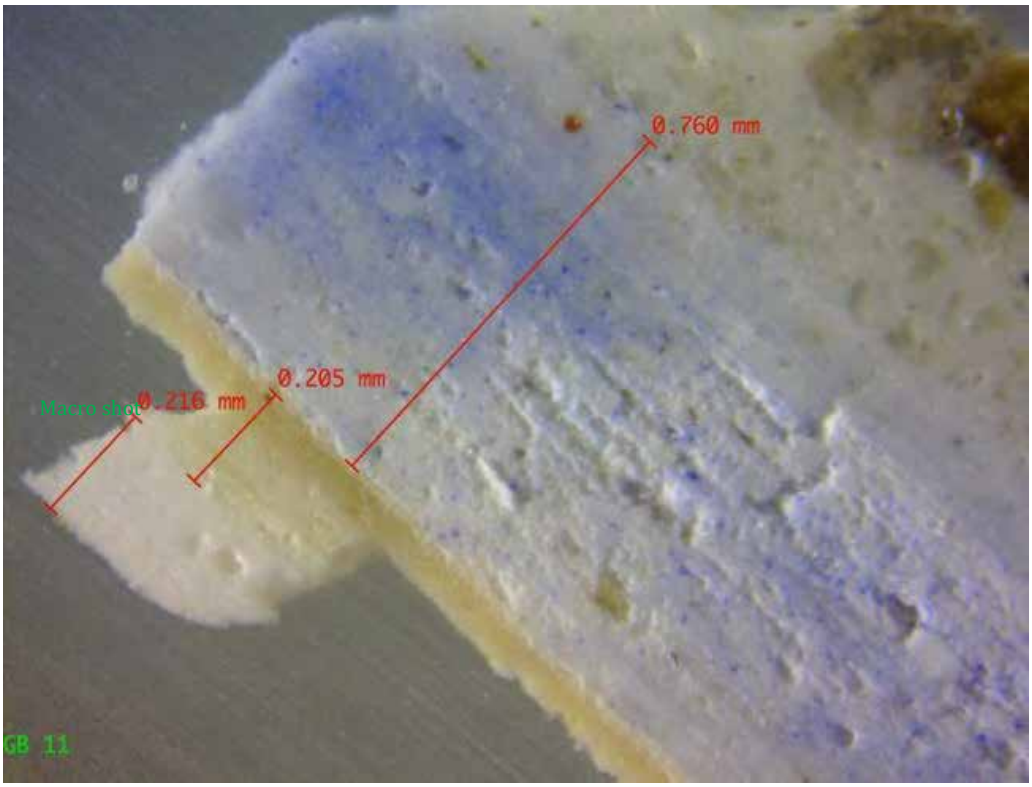


10 x magnification

- No evidence of ground layer is visible in this sample in any magnification.
- Only a single main paint layer is visible at both the magnification.
- The visible layer has many air bubbles suggesting it could be lime wash.

Sample code: GB11

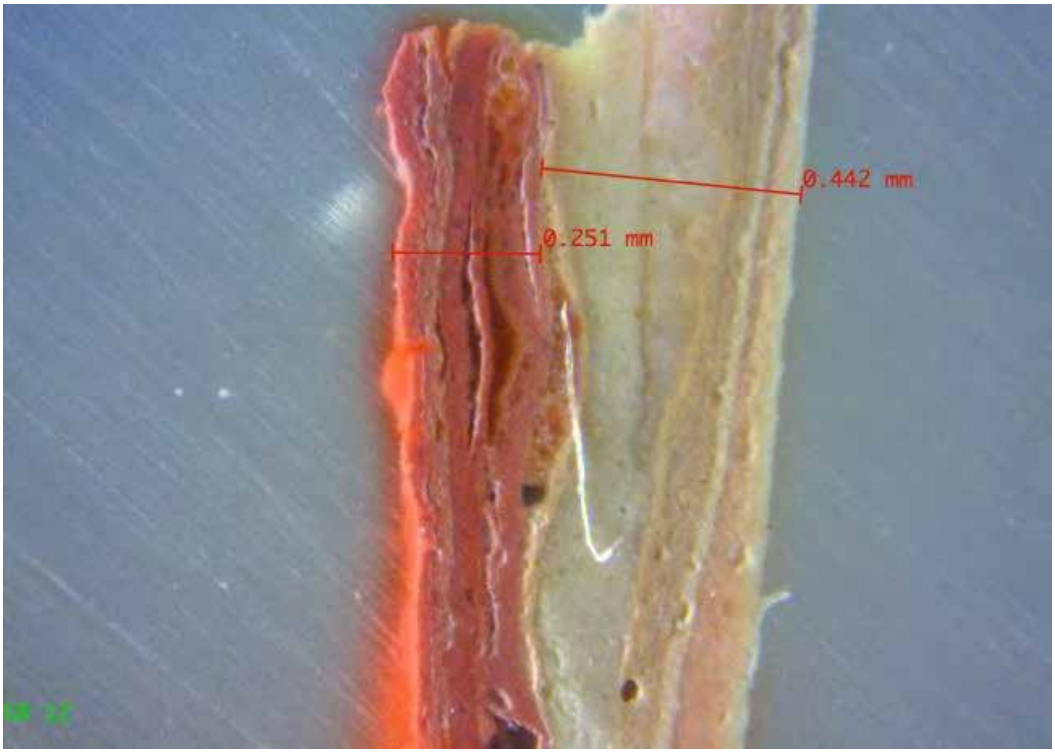




4x magnification

- White ground layer is quite evident in this sample in both the magnifications.
- The main paint layer has some solid color particles which is also very clear in the image.
- Some deposits are also visible at one end suggesting uneven deposition on the surface.

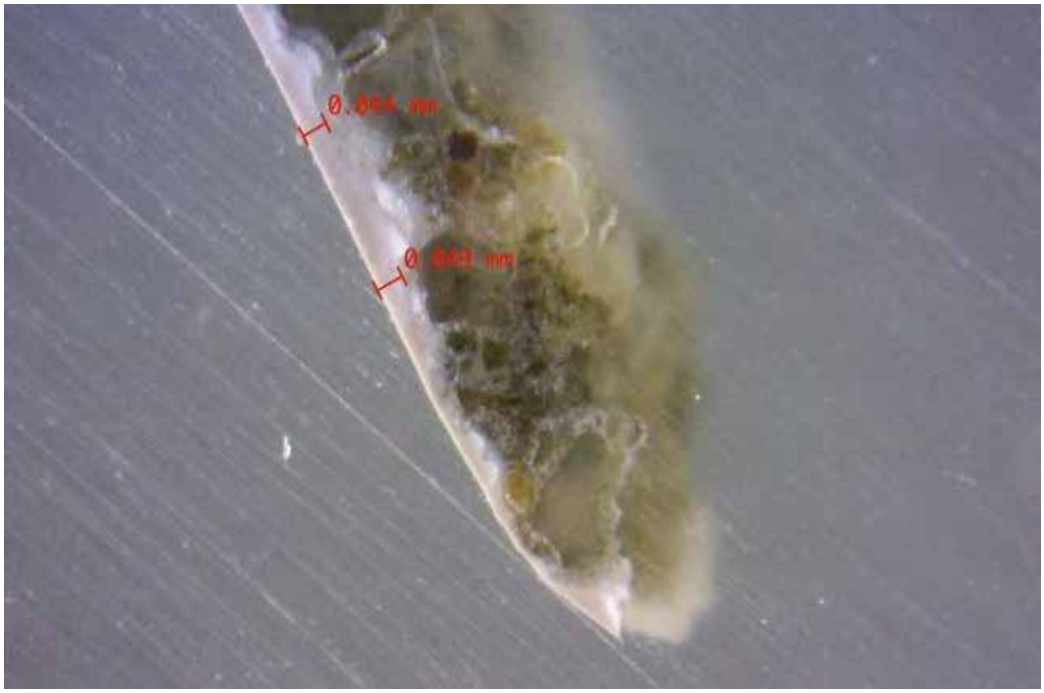
Sample code: GB12



10x magnification

- A ground layer is evidently visible in the sample in both the magnifications.
- Different shades of red colors are also visible in the sample.
- These different shades do not refer to re-painting of the wall these look like more of a filling material than paint layer.

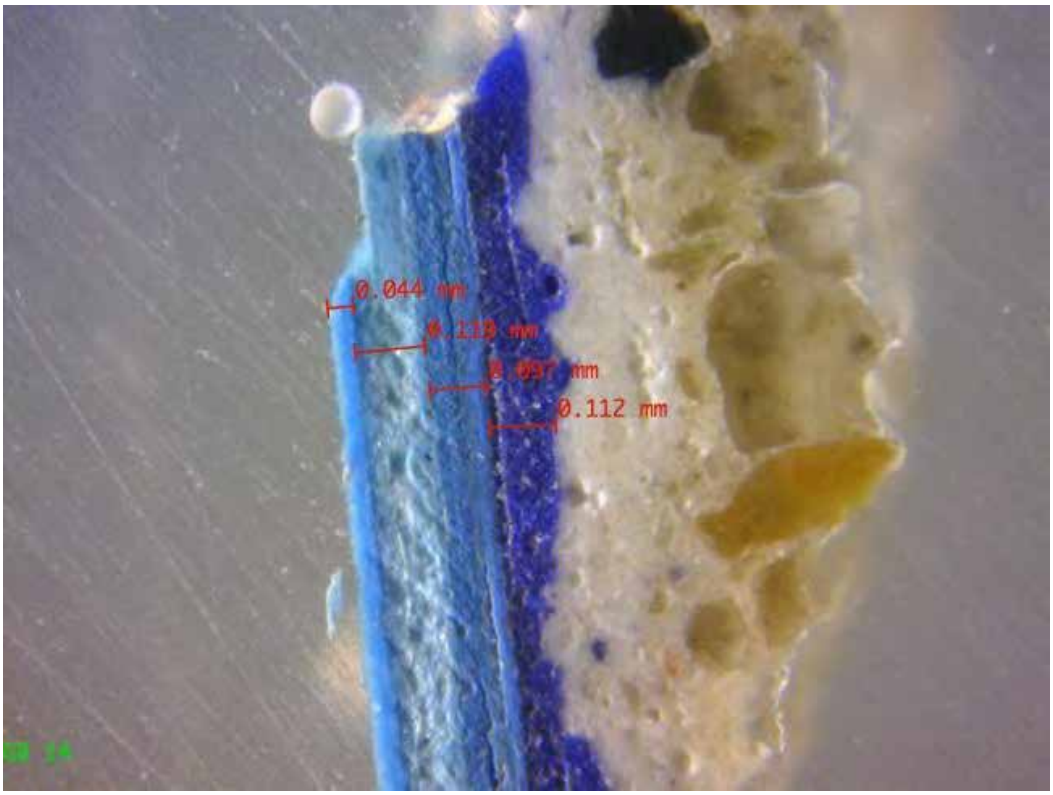
Sample code: GB13

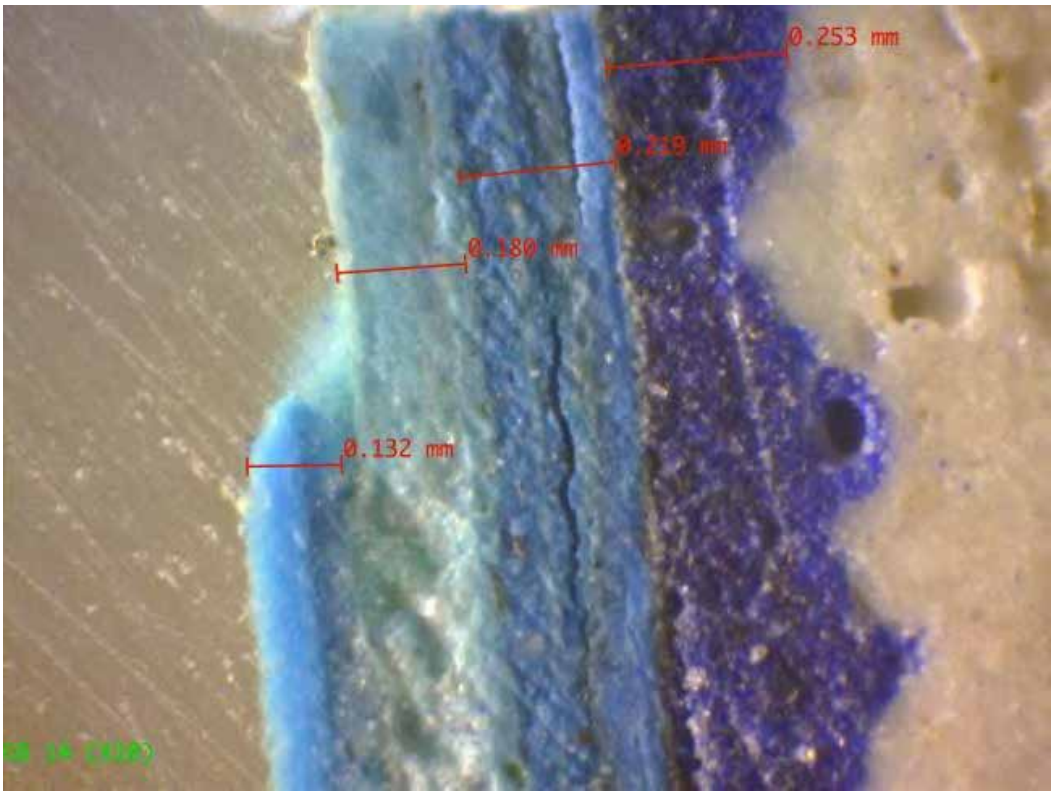


10x magnification

- A single white layer directly painted onto the plaster is visible.
- No evidence of ground layer is visible in the sample.

Sample code: GB14

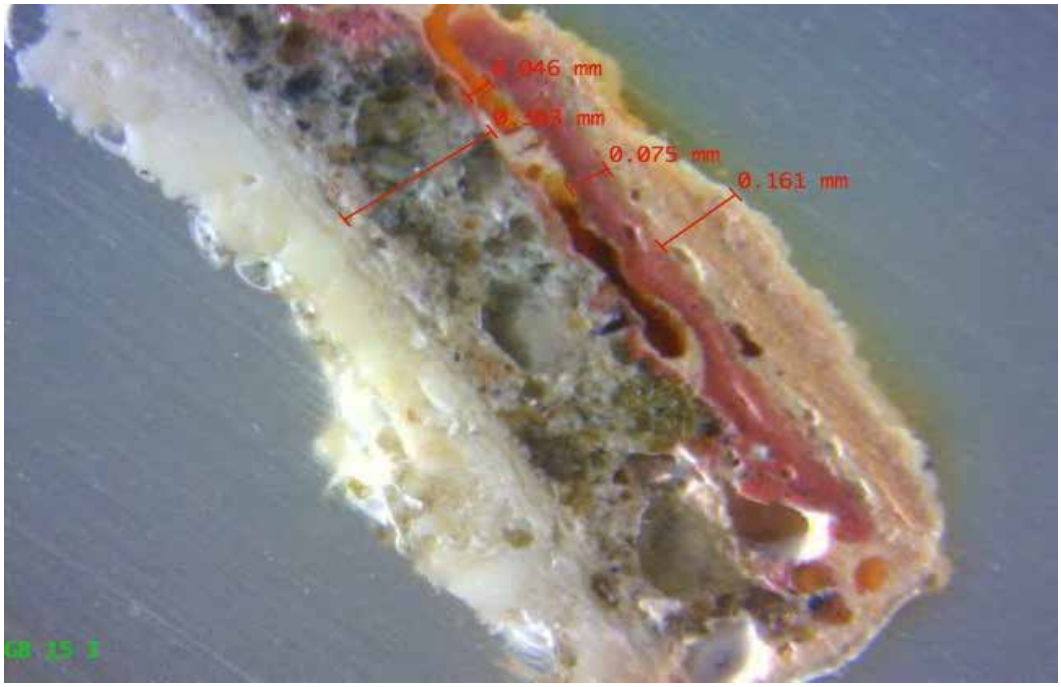


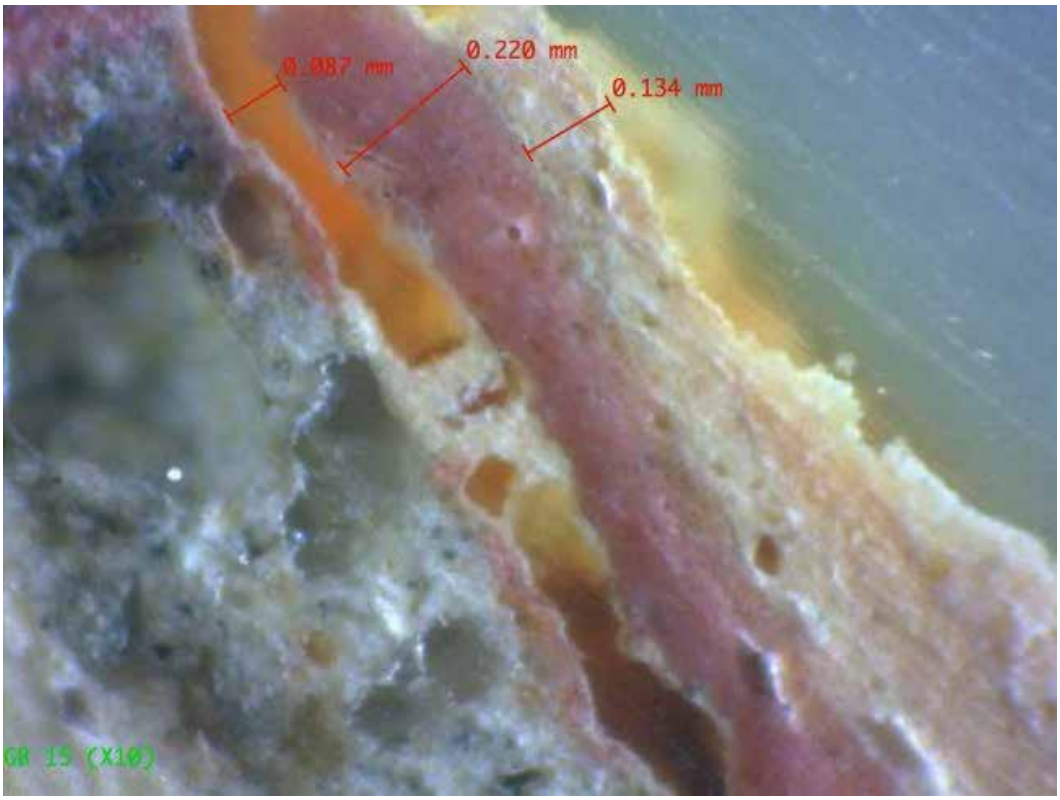


10x magnification

- Four different shades of blue are visible in the sample.
- The image shows even layered shades which suggest re-painting of the wall.
- Though a thin and uneven ground of blue color can be observed in 10x image but is not clear or distinguishable.

Sample code: GB15

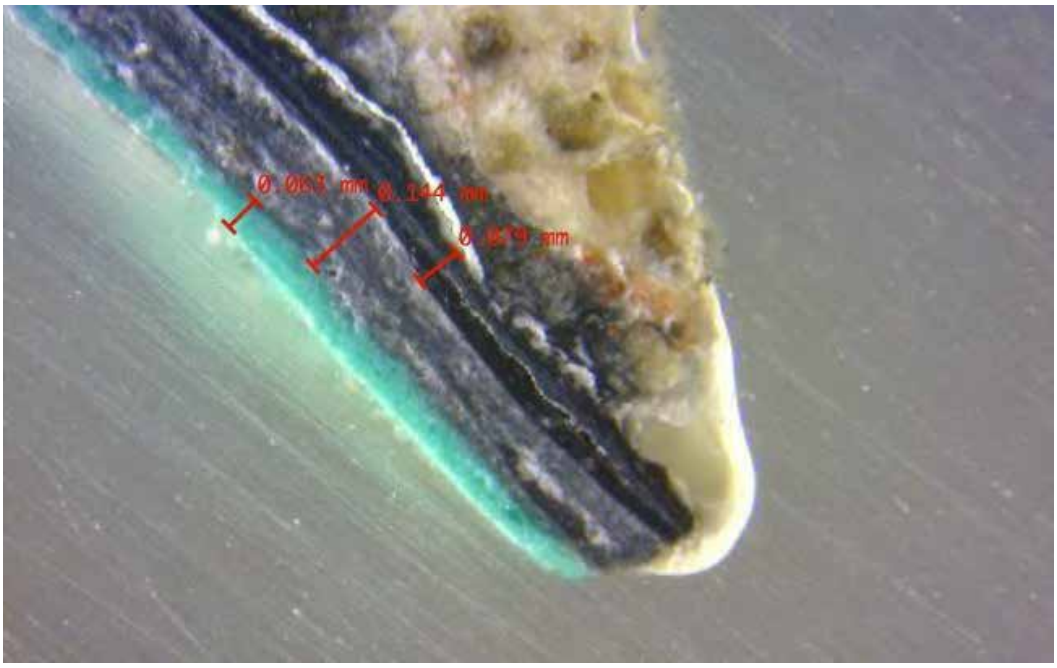


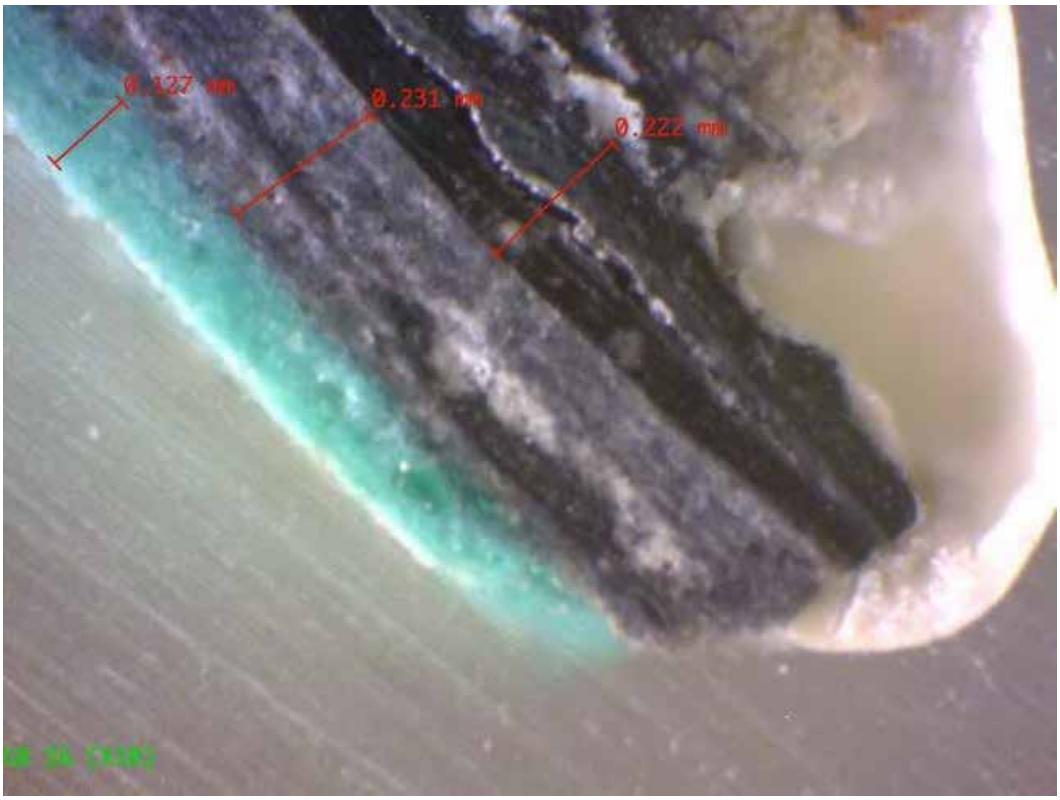


10x magnification

- Two consecutive paint layers are visible in both the magnifications.
- The lighter color is on the outer part and the base color is darker.
- Though a thin and uneven ground of dull pink color can be observed in x10 image but is not clear or distinguishable.

Sample code: GB16

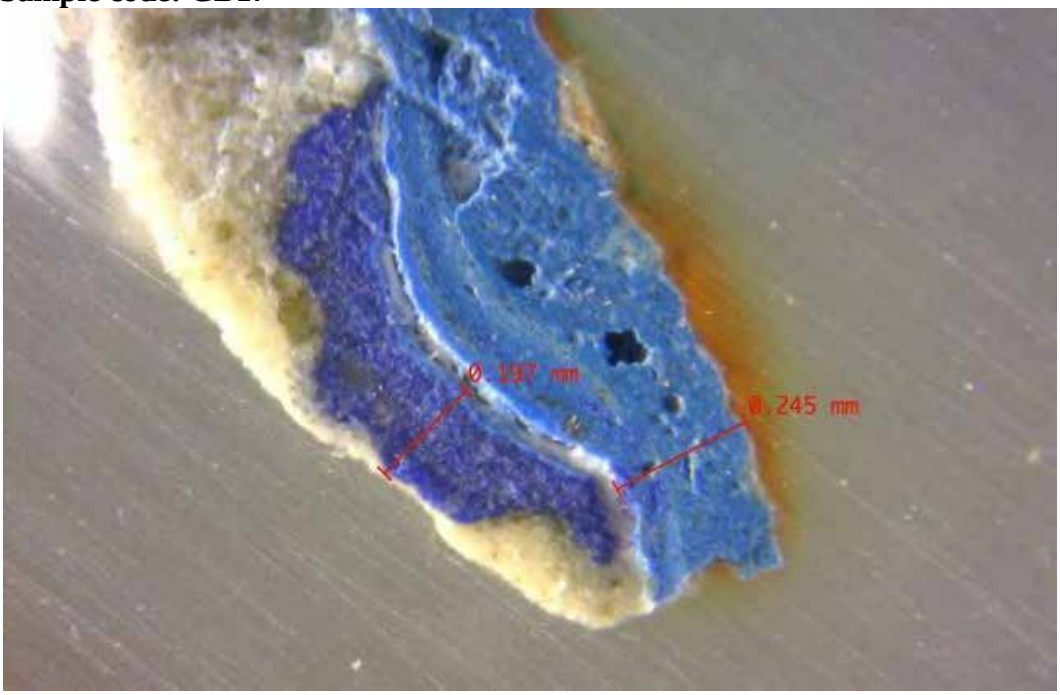


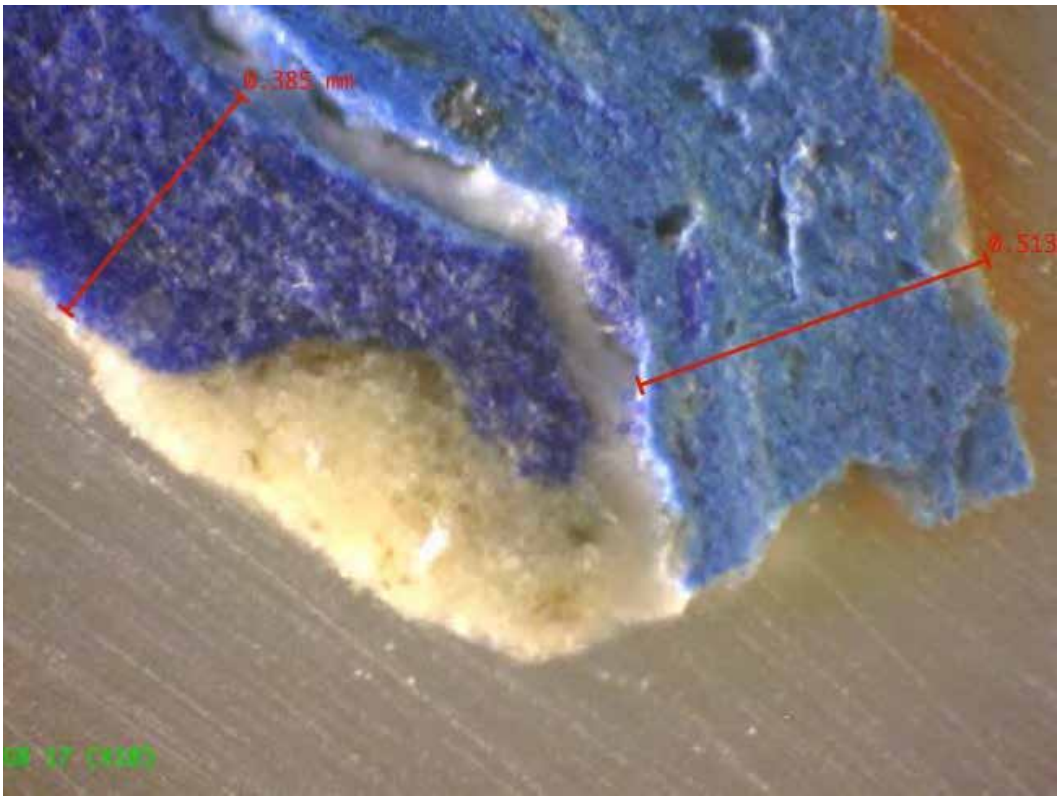


10x magnification

- Three color layers are visible in this sample on both the magnifications.
- Though a thin and uneven ground of grey color can be observed in 4x image but is not clear or distinguishable.
- Initial paint layers are dark in color whereas the outer most layers are lighter in color.

Sample code: GB17

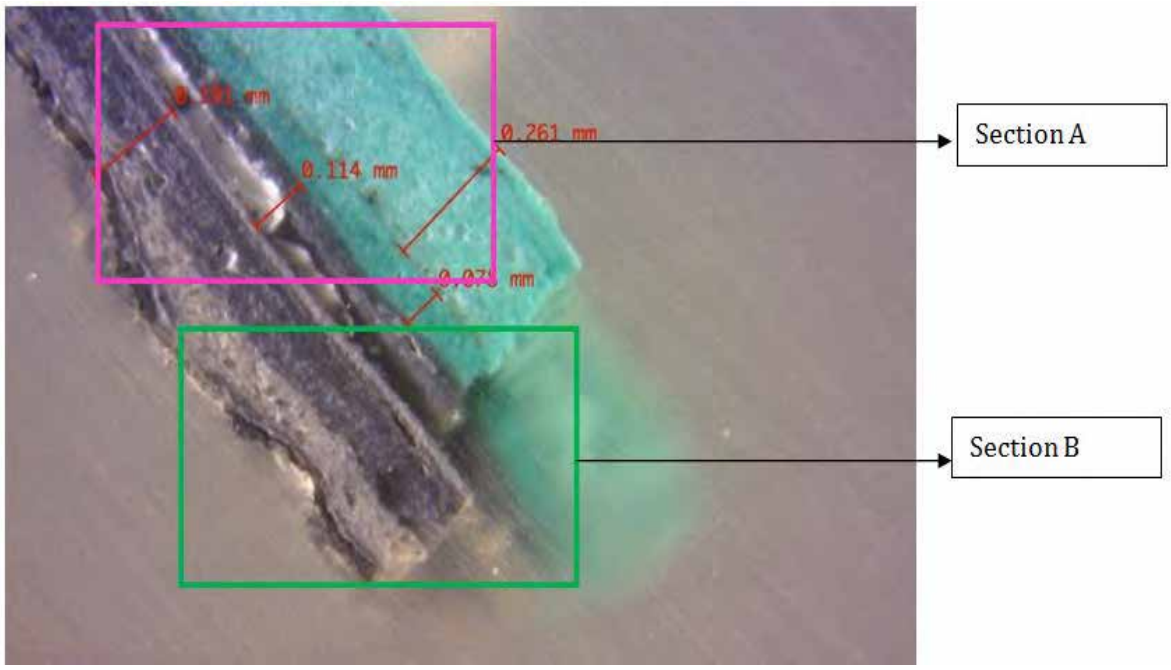




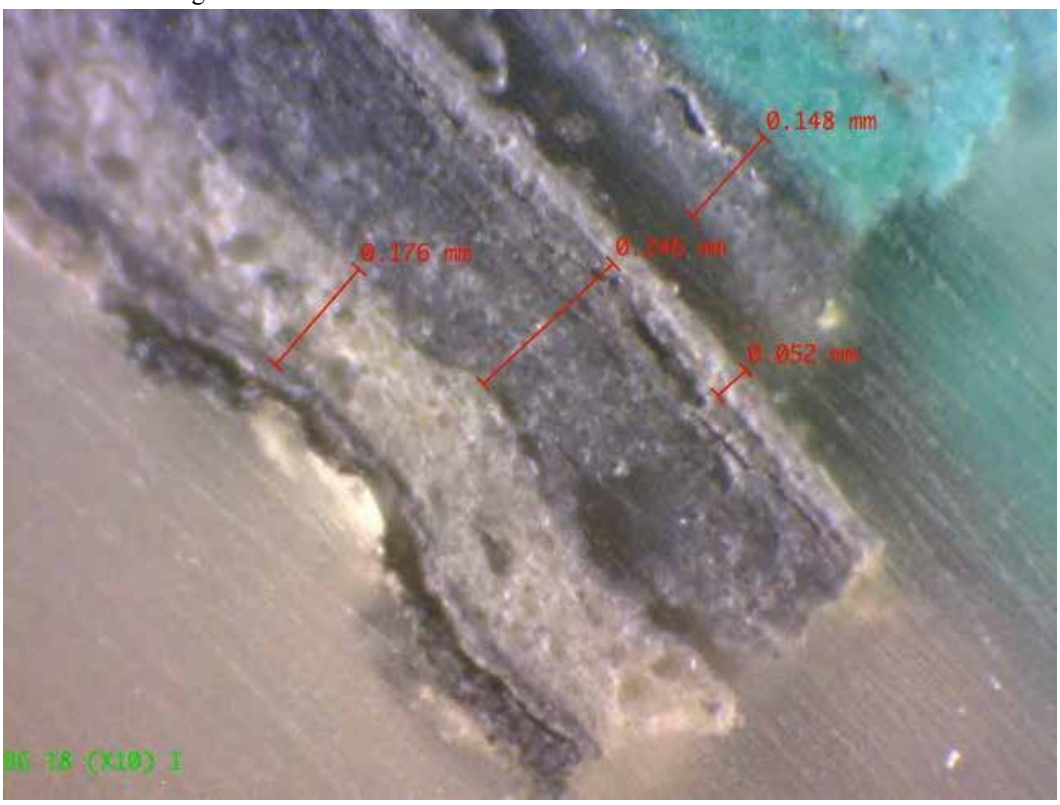
10x magnification

- Two consecutive layers of blue paint can be seen on both the magnifications.
- The inner layer could be the filling material as it is uneven layer and is present in depression area of the plaster.

Sample code: GB18



Section A:10x magnification

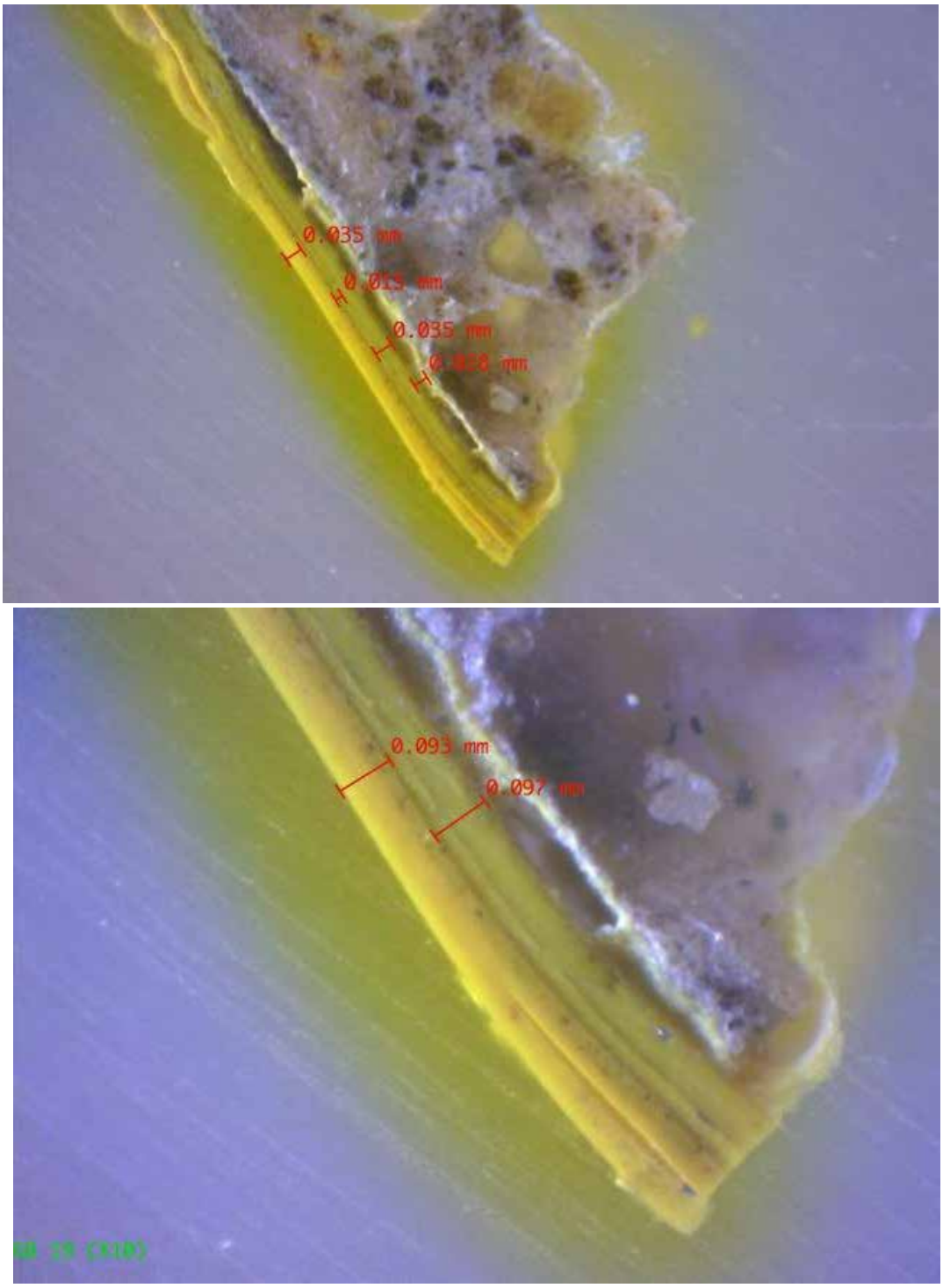


Section B:10x magnification

- Total four layers are visible on both the magnifications.

- The ground is not evident in this sample but the grey layer visible in 4x image gave the impression of the ground layer.
- The cyan color has two layers, which is evident in 10x image suggests re-painting of the wall.

Sample code: GB19

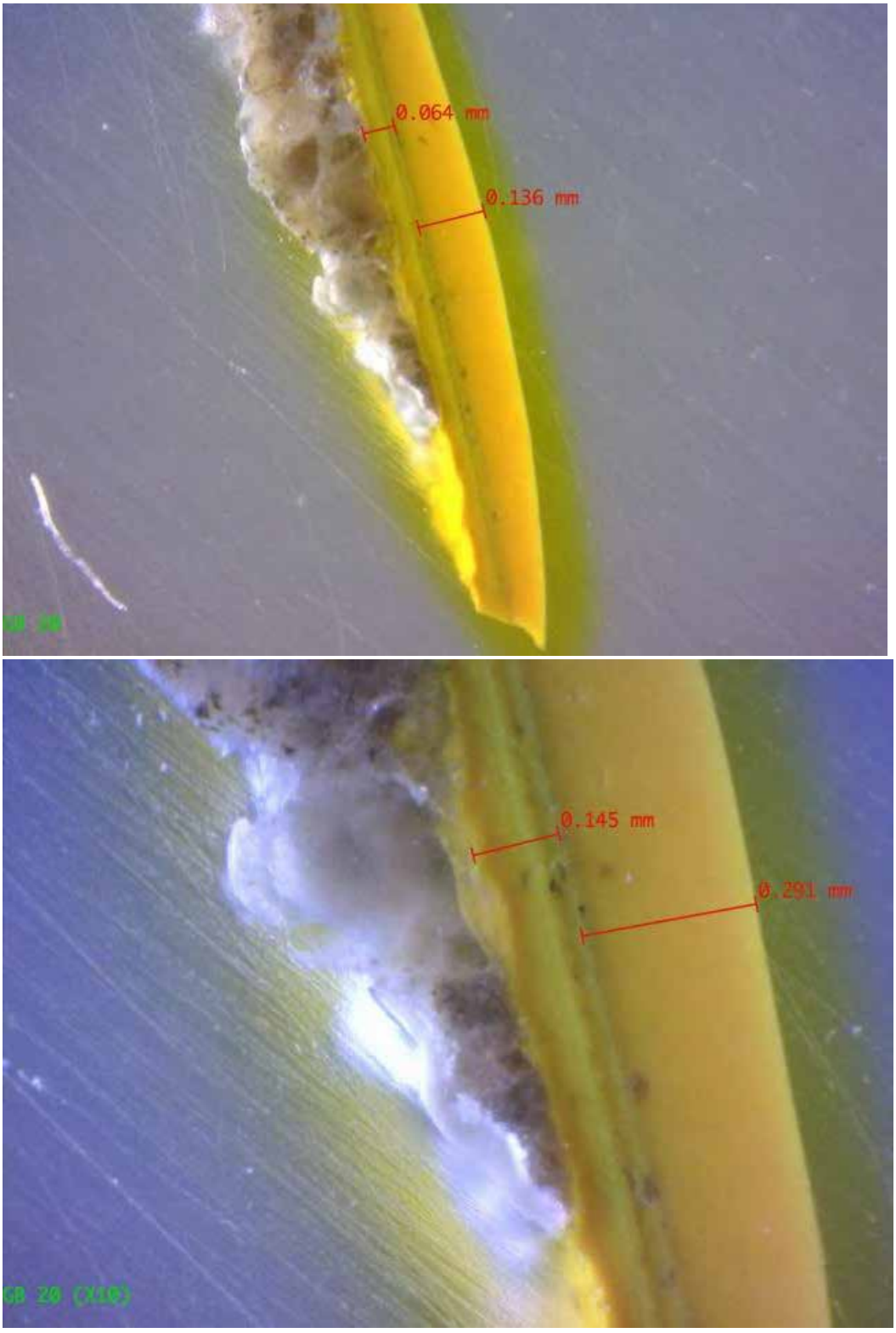


10 x magnifications

- Two consecutive layers of yellow color can be seen in both the magnifications.

- The x4 image is not showing clear evidence of ground layer.
- Though a thin and uneven ground of yellow color can be observed in x10 image in which two layers of yellow paint is quite evident.

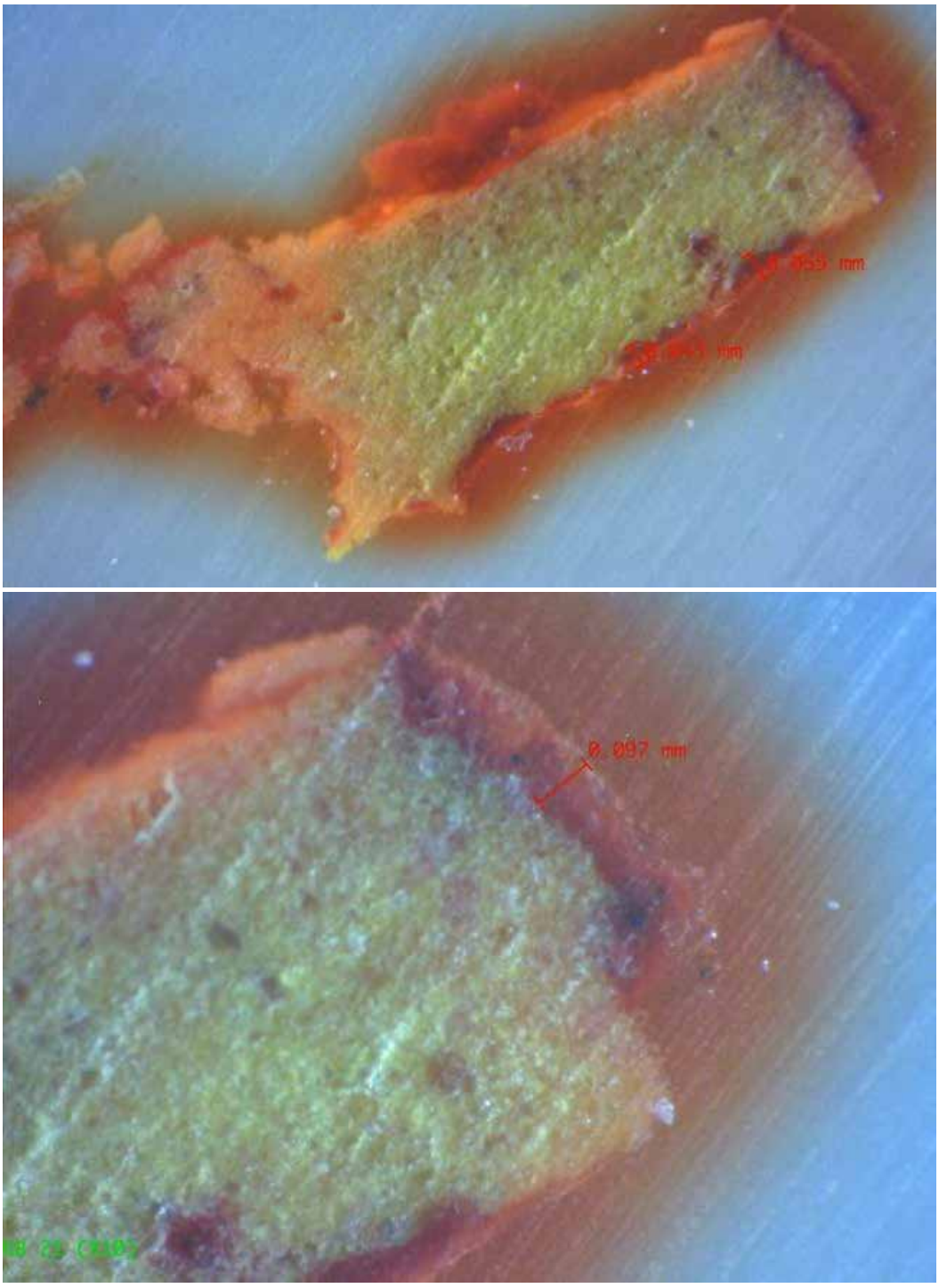
Sample code: GB20



10 x magnification

- Two consecutive layers of yellow color can be seen in 4x image.
- The x4 image is not showing clear evidence of ground layer.
- Though a thin and uneven ground of yellow color can be observed in 10x image in which two layers of yellow paint is quite evident.

Sample code: GB21

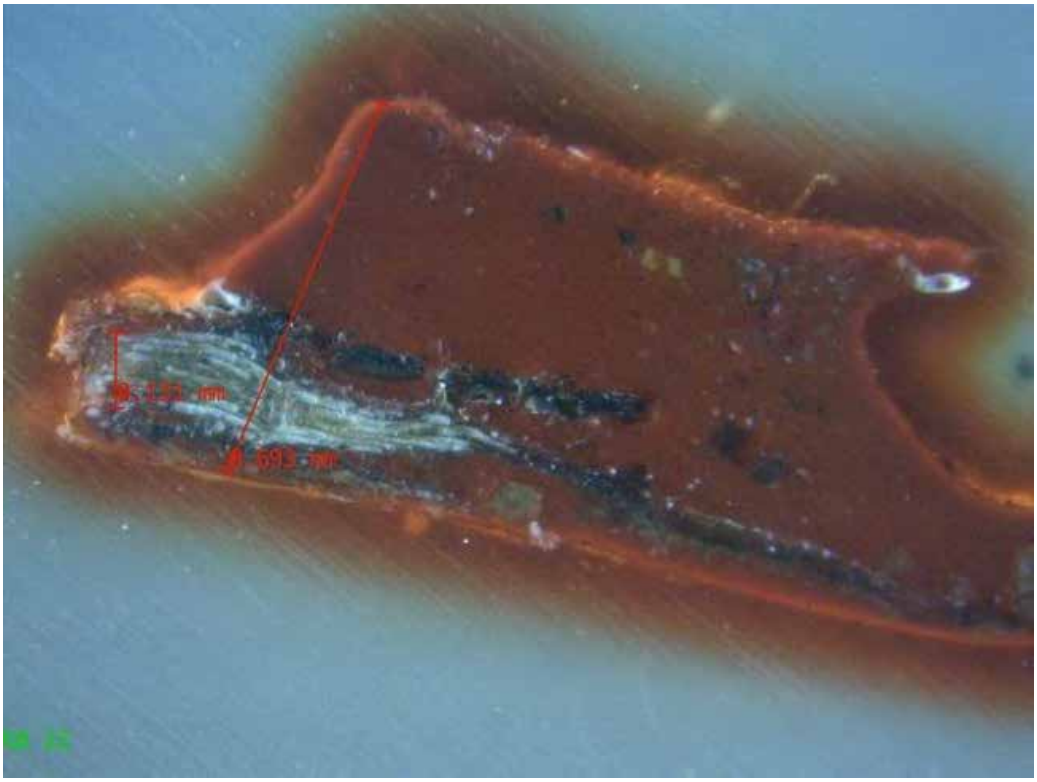


10 x magnification

- The yellow dense part appears to be a filling material or putty on the ply wood.

- A thin red layer is visible over the yellow layer which is the superficial layer or outer layer of the sample.
- A thin layer of ply wood is also visible in the sample.

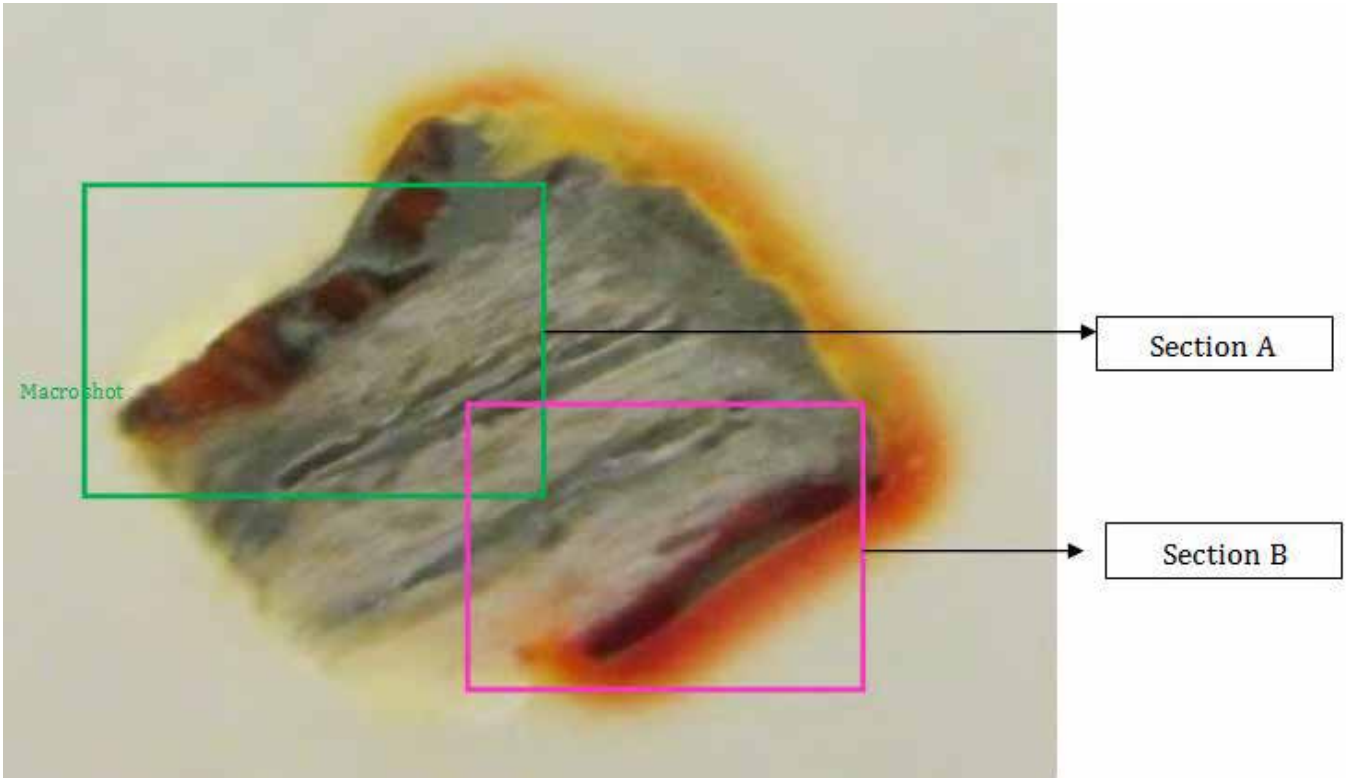
Sample code: GB22

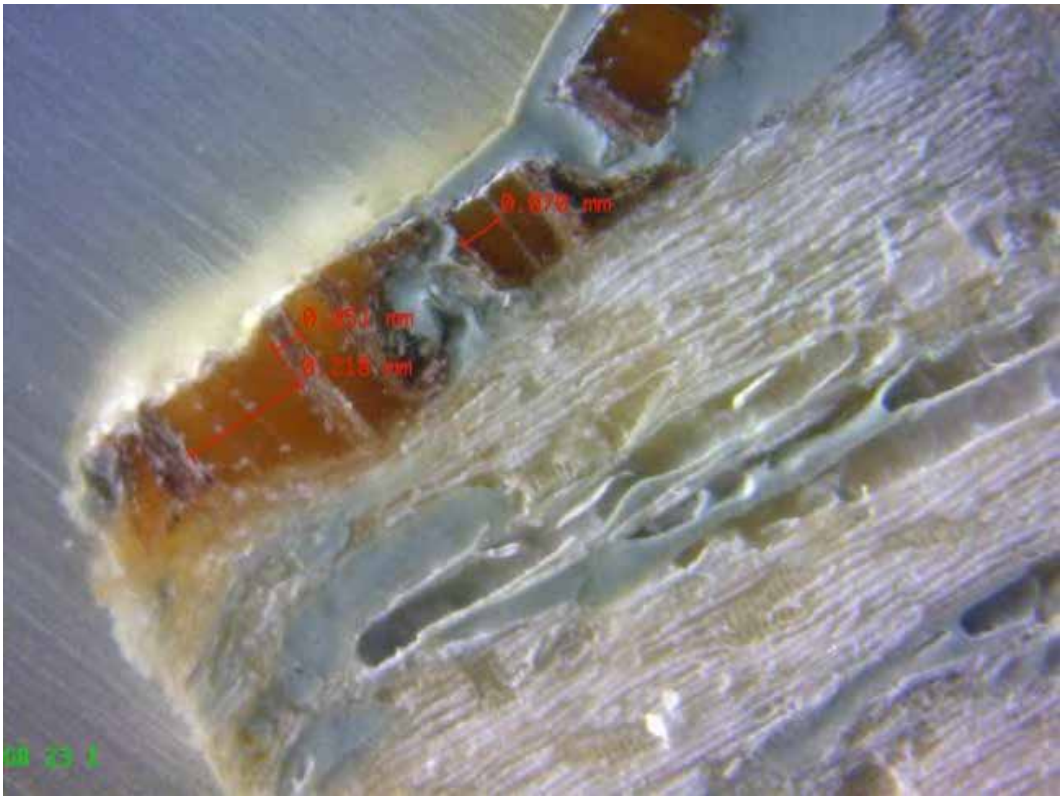


10x magnification

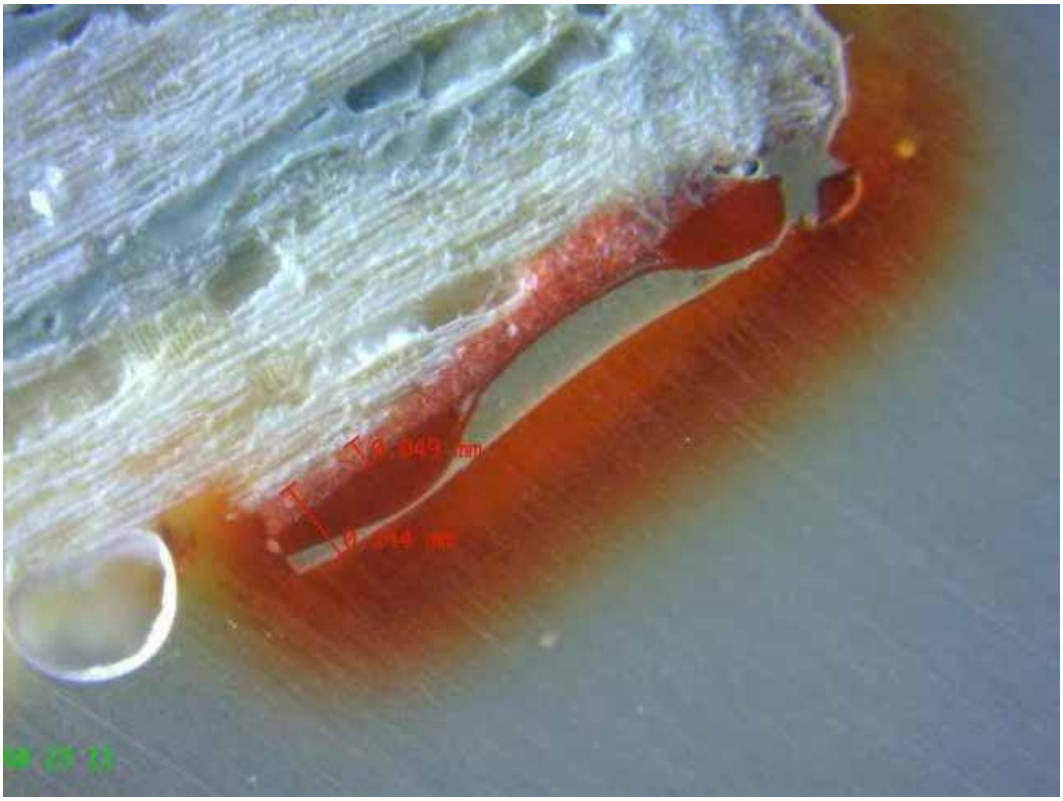
- A single color is visible in the sample.
- A little darker tone over the ply wood appears be the ground layer of the area.
- The red color has many impurities which are visible in x10 image.

Sample code: GB23





Section A: 4x magnification



Section B: 4x magnification

- Three layers are visible in the sample.
- A single color paint is visible in the sample.
- Though a thin and uneven layer of rust color is observed in 4x image which could be a ground but is not clear or distinguishable.

Please note that the observations are purely based on visual assessment of the sample images.
The sample images need to be analyzed in accordance with the cleaning trials and visual inspection undertaken at the site.

Nilabh Sinha
Principal Director
INTACH Conservation Institutes

Wooden samples Test Result

Nine wooden samples were received at INTACH ICI Delhi from Dronah Foundation for conducting test to identify the type and source of wood as well as to identify the coating present over them. Following is a brief report about the result based on the identification test conducted on the wooden samples. The coating layer was too thin, therefore the tests were not able to exactly identify the type of coating; however the coating had properties similar to that of varnish.

Image of samples

List of samples		
Sample no	**Title**	**Measurments Length x breadth**
Sample 1	CHAIR TYPE-1	45 X 15.5 cm
Sample 2	CHAIR TYPE -2	14 X 5.5cm
Sample 3	MAIN DOOR	25 X 9.8cm
Sample 4	CHAIR TYPE-01	42 X3.7cm
Sample 5	CHAIR TYPE-02	45.8 X4.2cm
Sample 6	CHAIR TYPE-2	43.3 X4.6 cm
Sample 7	CHAIR TYPE-2	42.6 X 5.3 cm
Sample 8	DISPLAY PANEL	32.4 X5.2 cm
Sample 9	DOOR WOOD	36.7 X11.3cm

The following table is based on the images obtained from the owner

S.no.	Type	Material	Photograph	
Sample 01	Chair Type 1	Wood		
Sample 02	Chair Type 1	Wood		
Sample 03	Main Entrance Door	Ply Wood		
Sample 04	Chair Type 1	Wood		

Sample 05	Chair Type 2	Wood		
Sample 06	Chair Type 2	Wood		
Sample 07	Chair Type 2	Wood		
Sample 08	Display Panel	Wood		
Sample 09	Toilet Door	Wood		

Test were conducted on five of the samples based on their type, the result are as follows

Sample	Sample marked as	Identification of species
Wood-1	Chair Type-1 (Sample-01)	Teak (*Tectona grandis*)
Wood-2	Chair Type-2 (Sample-06)	Teak (*Tectona grandis*)
Plywood	Main Door (Sample-03)	Semul (*Salmelia malabaricum*)
Wood-3	Display Panel (Sample-08)	Teak (*Tectona grandis*)
Wood-4	Door Wood (Sample-09)	Teak (*Tectona grandis*)

The surface coating results were not conclusive.

Cost of sample analysis : Rs. 12,000

ANNEXURE **10.4**

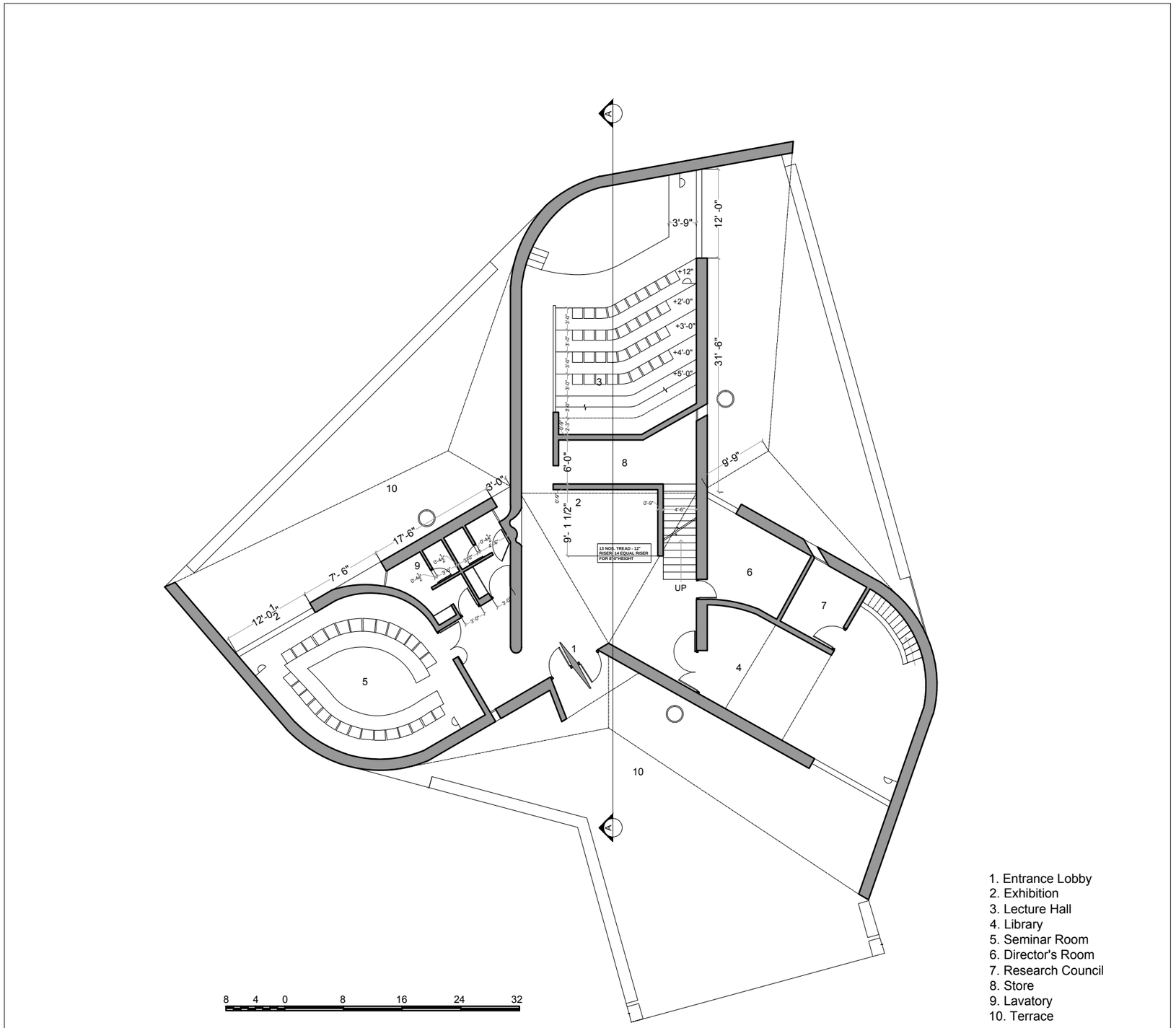
Drawings for Gandhi Bhawan

1. ARCHIVAL DIGITISATION DRAWINGS

List of Drawings

S.no.	Drawing Name	Drawing no.	Drawing Scale	Sheet Size
	Archival Drawings			
	Plans			
1.	Ground Floor Plan	GB/OR/P-01	1/16” =1’	A3
2.	Mezzanine Floor Plan	GB/OR/P-02	1/16” =1’	A3
3.	Elevation & Section	GB/OR/E-01	1/16” =1’	A3
4.	Wall Footing Detail	GB/OR/CD-01	1/8” =1’	A3
5.	Column Footing Detail	GB/OR/CD-02	1/8” =1’	A3
6.	Pool Plan	GB/OR/CD-03	1/8” =1’	A3
7.	Pool Detail	GB/OR/CD-04	1/8” =1’	A3
8.	Aerator Detail	GB/OR/CD-05	3” =1’	A3
9.	Roof Details	GB/OR/CD-06	6” =1’	A3
10.	Library Details	GB/OR/CD-07	1/8” =1’	A3
11.	Pedestal Light Details	GB/OR/CD-08	1” =1’	A3
12.	Pedestal Light Details (Existing)	GB/OR/CD-09	1” =1’	A3
13.	Seating Detail Conference Room	GB/OR/CD-10	1/2” =1’	A3
14.	Elevation Detail	GB/OR/CD-11	1/8” =1’	A3
	Documentation Drawings			
15.	Landscape Plan	GB/MD/P-01	1:500	A2
16.	Pool plan	GB/MD/P-02	1:250	A1
17.	Ground Floor Plan	GB/MD/P-03	1: 100	A1
18.	Mezzanine Floor Plan	GB/MD/P-04	1: 100	A2
19.	Roof Plan	GB/MD/P-05	1: 100	A2
20.	Structural Column and Beam Location Plan	GB/MD/P-06	1: 100	A2
	Elevations			
21.	Elevation 1&2	GB/MD/E-01	1: 100	A2
22.	Elevation 3&4	GB/MD/E-02	1: 100	A2
	Sections			
23.	Section A & B	GB/MD/S-02	1: 100	A2
24.	Section C& D	GB/MD/S-03	1: 100	A2
	Door & Windows			
25.	Door-D	GB/MD/DW-01	1:10	
26.	Door-D1, D2, D3	GB/MD/DW-02	1:10	
27.	Door-D4, D5, D6	GB/MD/DW-03	1:10	
28.	Door-D7, D7, D8, D9, D10	GB/MD/DW-04	1:10	
29.	Window- W1, W2, W3	GB/MD/DW-05	1:10	
30.	Window- W4, W5, W6, W7	GB/MD/DW-06	1:10	
31.	W8, W9 ,V1, V2	GB/MD/DW-07	1:10	
32.	S1, S-2, DW4	GB/MD/DW-08	1:10	
33.	Skylight	GB/MD/DW-09	1:10	
	Furniture			
34.	Sofa -1	GB/MD/F1/01	1:10	A3
35.	Sofa -2	GB/MD/F1/02	1:10	A3
36.	Chair type -1	GB/MD/F2/01	1:10	A3
37.	Chair type -2	GB/MD/F3/01	1:10	A3
38.	Table -1 & 2- G.S./11 & 13	GB/MD/F4/01	1:10	A2
39.	Table -3 & 4- G.S./6 & 1-8	GB/MD/F4/02	1:10	A2
	Details			A2
40.	Display Panels 1 Details	GB/MD/D-01	1:10	A2
41.	Display Panels 2 Details	GB/MD/D-02	1:10	A2
42.	Wall niche& cove light detail	GB/MD/D-03	1:10	A2
43.	Lighting Details	GB/MD/D-04	1:10	A2
44.	Cove Lighting & Railing Details	GB/MD/D-05	1:10	A2
45.	Concrete Cladding Panel Details	GB/MD/D-06	1:10	A2
46.	Railing Detail	GB/MD/D-07	1:10	A3
	Services Drawings			
	Plumbing			
47.	Rain Water Management	GB/MD/PL/P-01	1: 100	A2
48.	Water Supply Layout Plan	GB/MD/PL/P-02	1: 100	A2
49.	Sewage management	GB/MD/PL/P-03	1: 100	A2
50.	Waste water disposal	GB/MD/PL/P-04	1: 100	A2
	Condition Mapping			
	Plan			
51.	Pool Plan	GB/CM/P-01	1:300	A1
52.	Ground Floor Plan	GB/CM/P-02	1: 100	A2
53.	Mezz. Floor Plan	GB/CM/P-03	1: 100	A2
54.	Roof Plan	GB/CM/P-04	1: 100	A2
	Elevations			
55.	Unfolded Elevation 1	GB/CM/E-01	1:50	
56.	Unfolded Elevation 2	GB/CM/E-02	1:50	
57.	Unfolded Elevation 3	GB/CM/E-03	1:50	
	Internal Elevations			
58.	Ground Floor Plan (GF 1)	GB/CP/INT/GF/E-01	1:100	A3
59.	Ground Floor Plan (GF 1)	GB/CP/INT/GF/E-02	1:100	A3
60.	Ground Floor Plan (GF 1)	GB/CP/INT/GF/E-03	1:100	A3
61.	Ground Floor Plan (GF 1)	GB/CP/INT/GF/E-04	1:100	A3
62.	Ground Floor Plan (GF 1)	GB/CP/INT/GF/E-05	1:100	A3
63.	Ground Floor Plan (GF 1)	GB/CP/INT/GF/E-06	1:100	A3

	Door & Windows			
64.	Door-D	GB/CM/DW/01	1:10	A2
65.	Door-D1	GB/CM/DW/02	1:10	A2
66.	Door-D2	GB/CM/DW/03	1:10	A2
67.	Door-D3	GB/CM/DW/04	1:10	A2
68.	Door-D4	GB/CM/DW/05	1:10	A2
69.	Door-D5	GB/CM/DW/06	1:10	A2
70.	Door-D6	GB/CM/DW/07	1:10	A2
71.	Door-D7 (M)	GB/CM/DW/08	1:10	A2
72.	Door-D7 (F)	GB/CM/DW/09	1:10	A2
73.	Door-D8 (M)	GB/CM/DW/10	1:10	A2
74.	Door-D8 (F)	GB/CM/DW/11	1:10	A2
75.	Door-D9	GB/CM/DW/12	1:10	A2
76.	Door-D10	GB/CM/DW/13	1:10	A2
77.	Window- W4	GB/CM/DW/14	1:10	A2
78.	Window- W5 & W6	GB/CM/DW/15	1:10	A2
79.	Window- W7 & W8	GB/CM/DW/16	1:10	A2
80.	Window- W9 & Skylight	GB/CM/DW/17	1:16	A1
81.	Window- S1	GB/CM/DW/18	1:10	A2
82.	Window- S2	GB/CM/DW/19	1:10	A2
83.	Window- V1	GB/CM/DW/20	1:10	A2
84.	Window- V2	GB/CM/DW/21	1:10	A2
	Furniture			
85.	Sofa-1	GB/CM/F1/01	1:10	A3
86.	Sofa-2	GB/CM/F1/02	1:10	A3
87.	Sofa-3	GB/CM/F1/03	1:10	A3
88.	Chair type-1- G.S./21	GB/CM/F2/01	1:10	A3
89.	Chair type-1- G.S./41	GB/CM/F2/02	1:10	A3
90.	Chair type-1- G.S./28	GB/CM/F2/03	1:10	A3
91.	Chair type-1- G.S./2	GB/CM/F2/04	1:10	A3
92.	Chair type-1- G.S./16	GB/CM/F2/05	1:10	A3
93.	Chair type-1- G.S./10	GB/CM/F2/06	1:10	A3
94.	Chair type-1- G.S./46	GB/CM/F2/07	1:10	A3
95.	Chair type-1- G.S./7	GB/CM/F2/08	1:10	A3
96.	Chair type-1- G.S./4	GB/CM/F2/09	1:10	A3
97.	Chair type-1- G.S./3	GB/CM/F2/10	1:10	A3
98.	Chair type-1- G.S./20	GB/CM/F2/11	1:10	A3
99.	Chair type-1- G.S./9	GB/CM/F2/12	1:10	A3
100.	Chair type-2- G.S./9	GB/CM/F3/01	1:10	A3
101.	Chair type-2- G.S./37	GB/CM/F3/02	1:10	A3
102.	Chair type-2- G.S./28	GB/CM/F3/03	1:10	A3
103.	Chair type-2- G.S./16	GB/CM/F3/04	1:10	A3
104.	Chair type-2- G.S./5	GB/CM/F3/05	1:10	A3
105.	Chair type-2- G.S./26	GB/CM/F3/06	1:10	A3
106.	Chair type-2- G.S./14	GB/CM/F3/07	1:10	A3
107.	Chair type-2- G.S./15	GB/CM/F3/08	1:10	A3
108.	Chair type-2- G.S./45	GB/CM/F3/09	1:10	A3
109.	Chair type-2- G.S./11	GB/CM/F3/10	1:10	A3
110.	Chair type-2- G.S./24	GB/CM/F3/11	1:10	A3
111.	Table- G.S./11	GB/CM/F4/01	1:10	A2
112.	Table- G.S./13	GB/CM/F4/02	1:10	A3
113.	Table- G.S./6	GB/CM/F4/03	1:10	A3
	Proposal Drawings			
	Use & Interpretation			
114.	Ground Floor (Use & Interpretation) Plan	GB/P/P-01	1:100	A2
115.	Mezz.Floor (Use & Interpretation) Plan	GB/P/P-02	1:100	A2
	Interior			
116.	Ground Floor Plan (GF 1& 2)	GB/CP/INT/P-01	1:50	A3
117.	Ground Floor Plan (GF3)	GB/CP/INT/P-02	1:50	A3
118.	Ground Floor Plan (GF4,6,7)	GB/CP/INT/P-03	1:50	A3
119.	Ground Floor Plan (GF5)	GB/CP/INT/P-04	1:50	A3
120.	Mezz. Floor Plan (MF 1,3,4)	GB/CP/INT/P-05	1:50	A3
121.	Mezz. Floor Plan (MF 2)	GB/CP/INT/P-06	1:50	A3
	Elevations			
122.	Unfolded Elevation 1	GB/CP/E-01	1:50	
123.	Unfolded Elevation 2	GB/CP/E-02	1:50	
124.	Unfolded Elevation 3	GB/CP/E-03	1:50	
	Landscape			
125.	Landscape proposal Plan with Detail & Schematic Section	GB/P /LP-01		
	Electrical & HVAC			
126.	Electrical Layout G.F. Plan	GB/CP /EL/P-01	1:100	A2
127.	Electrical Layout M.F. Plan	GB/CP/EL/P-02	1:100	A2
128.	**Risk Management Plan**	GB/CP/RMP/P-01	1:100	A2
129.	**Universal Accessibility Plan**	GB/CP/UA/P-01	1:100	A2



1. Entrance Lobby
2. Exhibition
3. Lecture Hall
4. Library
5. Seminar Room
6. Director's Room
7. Research Council
8. Store
9. Lavatory
10. Terrace

ARCHIVAL DETAILS

ORIGINAL SCALE: 1/8"=1'-0"

DRAWN BY:	CHECKED BY:	DATED

DRAWING NAME: - GROUND FLOOR

DRAWING NO. -

SOURCE : PANJAB UNIVERSITY, OFFICE OF CHIEF ARCHITECT HARPREET SINGH

PROJECT:

GANDHI BHAWAN , PANJAB UNIVERSITY

DRAWING SCALE: 1/16" =1'

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	1.10.2016

DRAWING NAME:

GROUND FLOOR PLAN

DRAWING NUMBER: GB/OR/P-01

SERIES: DIGITISATION

PROJECT:

CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

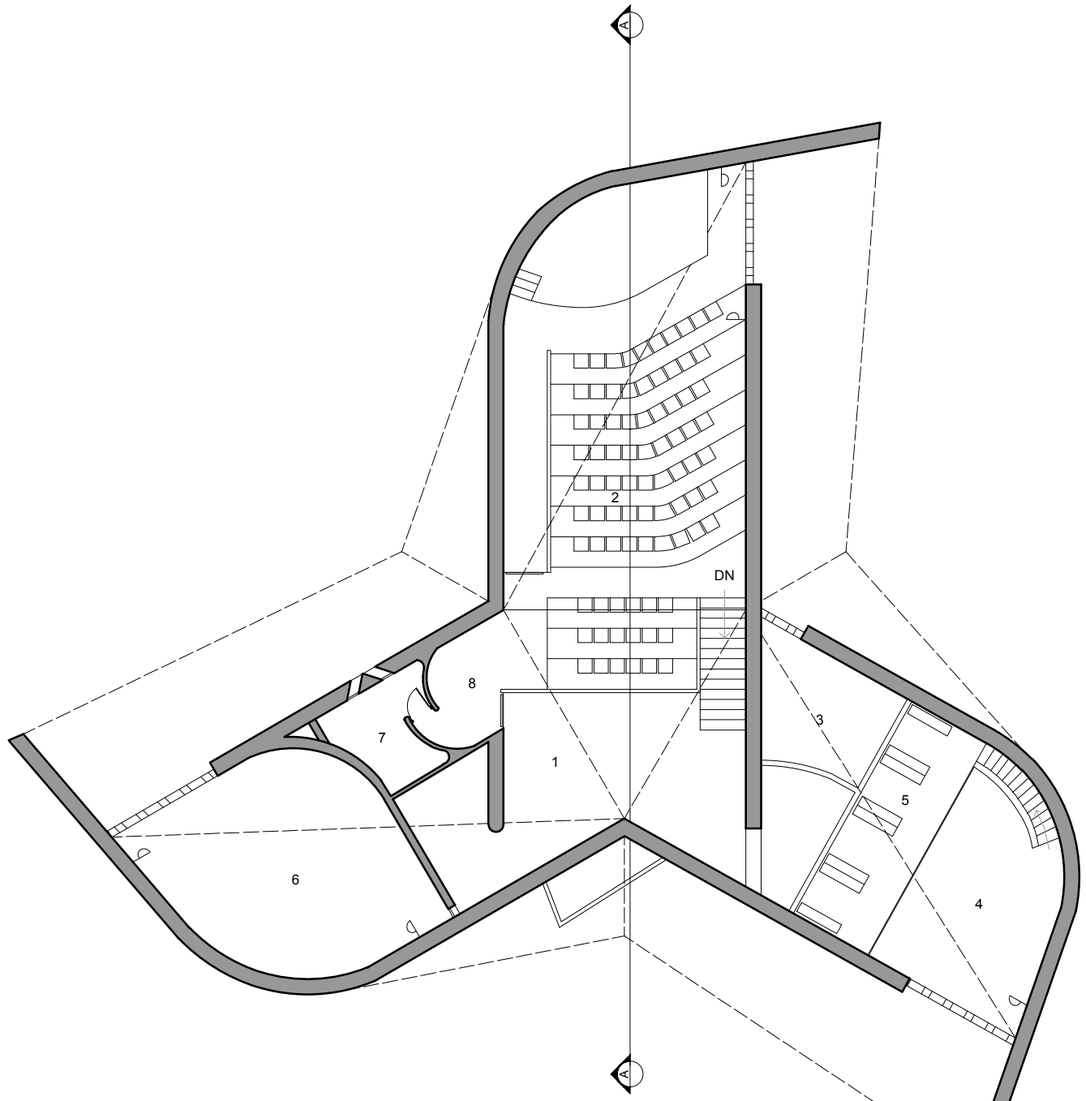
CLIENT:

PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



8 4 0 8 16 24 32

1. Upper Part of Entrance Hall
2. Upper Part of Lecture Hall
3. Upper Part of Director's Room
4. Upper Part of Library
5. Stacks
6. Upper Part of Seminar's Room
7. Store
8. Alcove

ARCHIVAL DETAILS

ORIGINAL SCALE: 1/8"=1'-0"

DRAWN BY:	CHECKED BY:	DATED

DRAWING NAME: -
MEZZANINE FLOOR PLAN

DRAWING NO. -

SOURCE : PANJAB UNIVERSITY, OFFICE OF CHIEF ARCHITECT HARPREET SINGH

PROJECT:
GANDHI BHAWAN , PANJAB UNIVERSITY

DRAWING SCALE: 1/16" =1'

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	1.10.2016

DRAWING NAME:
MEZZANINE FLOOR PLAN

DRAWING NUMBER: GB/OR/P-02

SERIES: DIGITISATION OF ARCHIVAL DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

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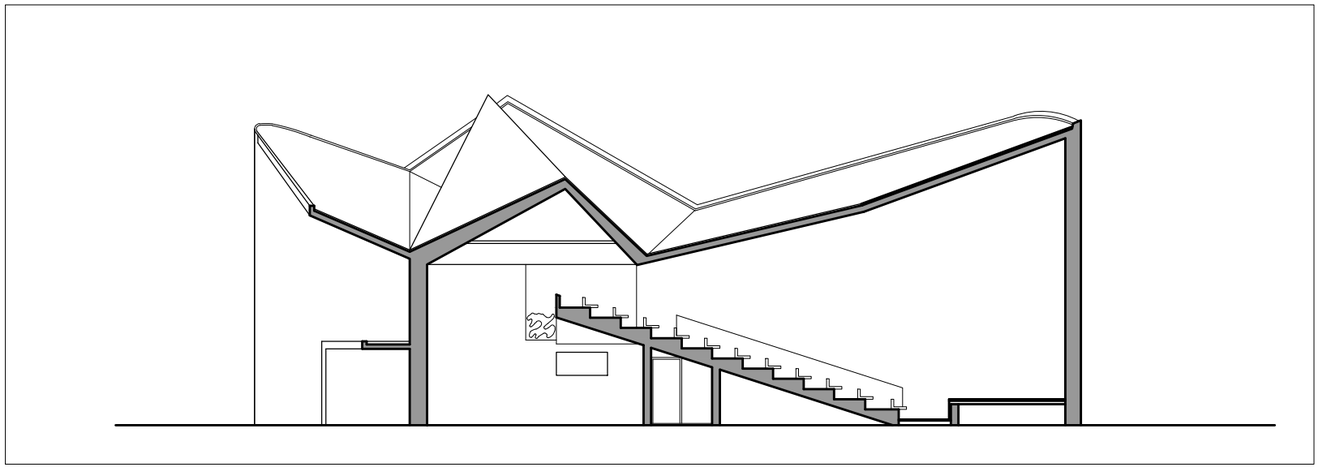
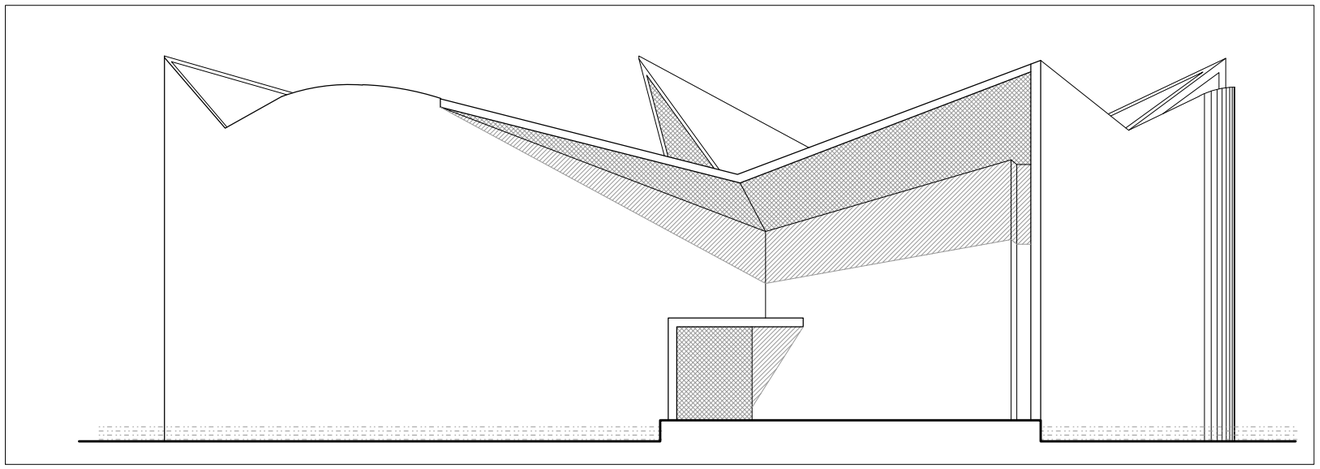
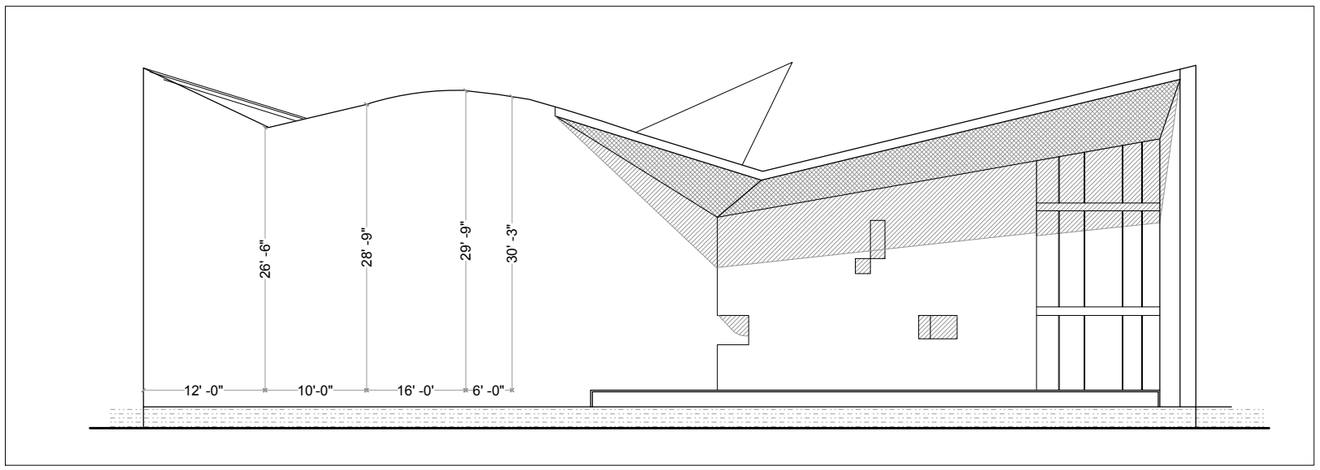


SECTION A-A



ELEVATION - 1



ELEVATION - 2

ARCHIVAL DETAILS

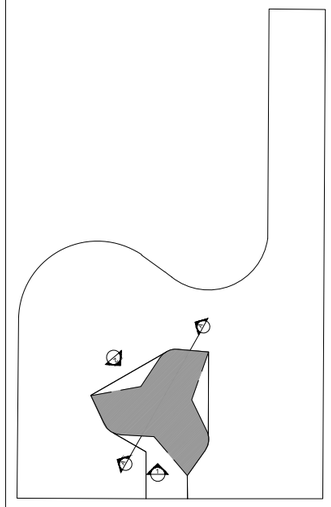
ORIGNAL SCALE: 1/8" =1'

DRAWN BY:	CHECKED BY:	DATED

SOURCE : PANJAB UNIVERSITY, OFFICE OF CHIEF ARCHITECT HARPREET SINGH

PROJECT:

GANDHI BHAWAN , PANJAB UNIVERSITY



KEY PLAN

DRAWING SCALE: 1/16" =1'

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	01.10.2016

DRAWING NAME:

ELEVATIONS & SECTIONS

DRAWING NUMBER: GB/OR/E-01, E-02, S-01

SERIES: DIGITISATION ARCHIVAL

PROJECT:

CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
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CLIENT:

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CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

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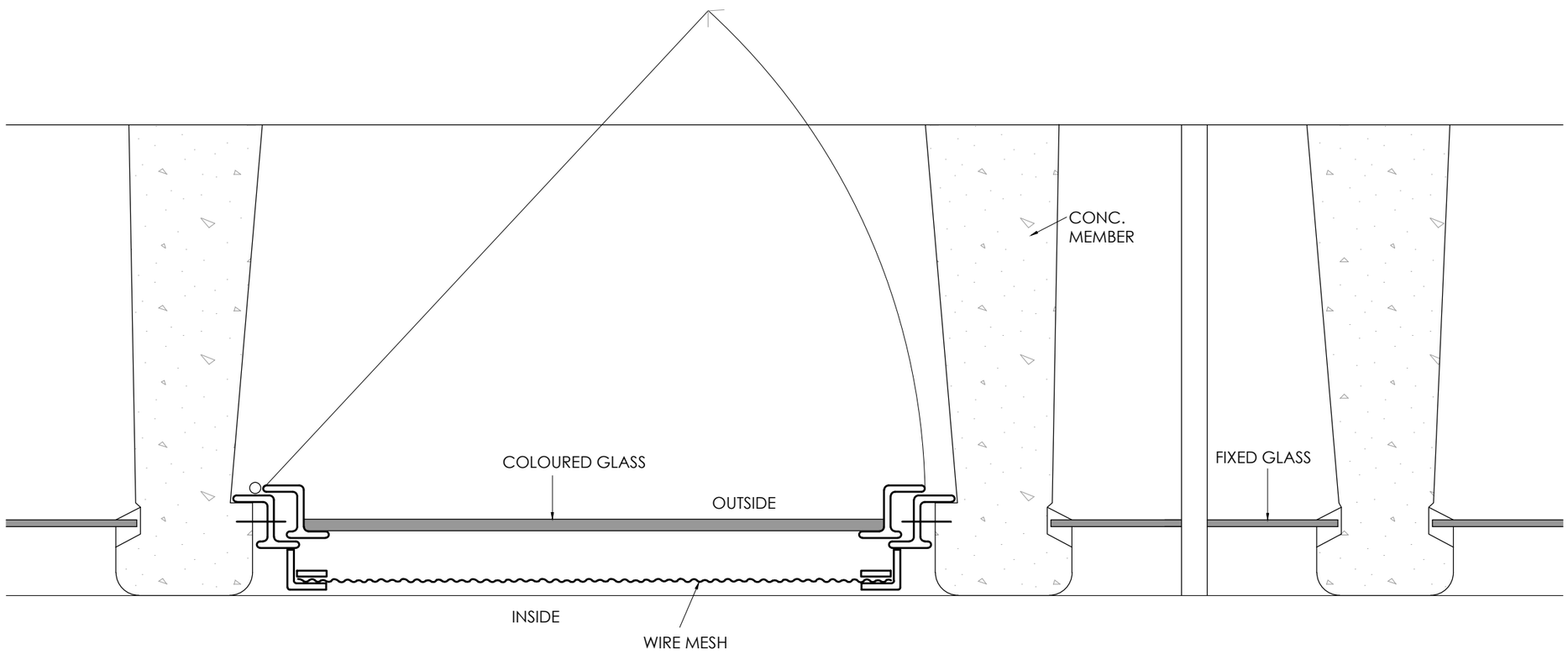

PLAN OF AREATOR

ARCHIVAL DETAILS

ORIGINAL SCALE: FULL SIZE

ORIGINAL SHEET SIZE: A0

DRAWN BY:	CHECKED BY:	DATED
		30.2.62

DRAWING NAME:
DETAIL OF AREATOR

JOB NO.: 17

DRAWING NO.: 01

SOURCE : PANJAB UNIVERSITY, OFFICE OF CHIEF ARCHITECT HARPREET SINGH

PROJECT:
GANDHI BHAWAN , PANJAB UNIVERSITY

DRAWING SCALE: 1/8" =1'

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	

DRAWING NAME:
CONSTRUCTION DETAILS, GANDHI BHAWAN

DRAWING NUMBER: GB/OR/D -05

SERIES: ARCHIVAL DIGITISATION

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
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GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

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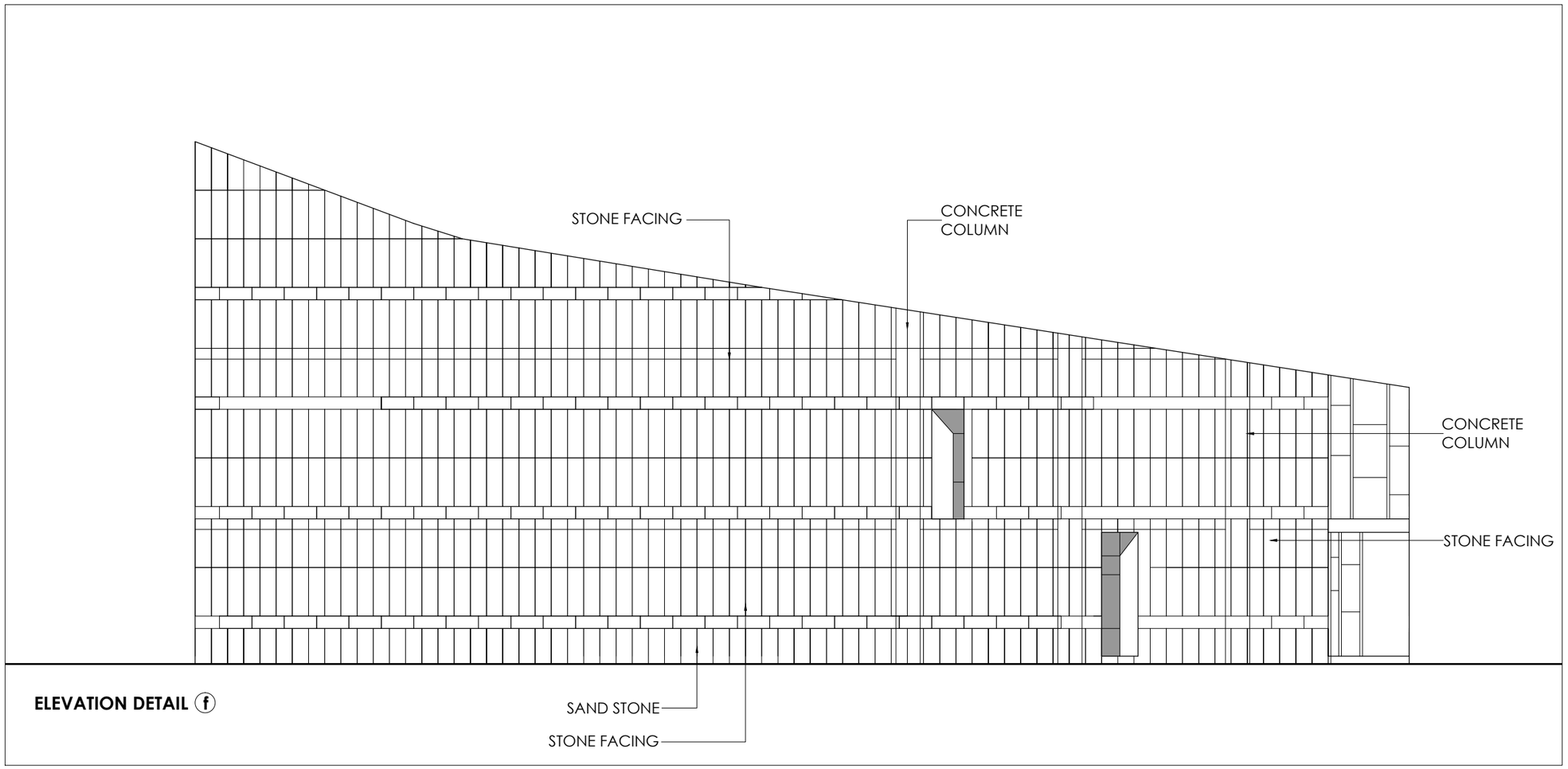
GURGAON-122001



ELEVATION DETAIL ⓕ

ARCHIVAL DETAILS

ORIGINAL SCALE: ½"= 1'-0"

ORIGINAL SHEET SIZE: A0

DRAWN BY:	CHECKED BY:	DATED
		30. 3. 61

DRAWING NAME:
ELEVATION DETAIL ⓕ

JOB NO.: 17

DRAWING NO.: 62

SOURCE : PANJAB UNIVERSITY, OFFICE OF CHIEF ARCHITECT HARPREET SINGH

PROJECT:
GANDHI BHAWAN , PANJAB UNIVERSITY

DRAWING SCALE: 1/8" =1'

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	

DRAWING NAME:
CONSTRUCTION DETAILS, GANDHI BHAWAN

DRAWING NUMBER: GB/OR/D -11

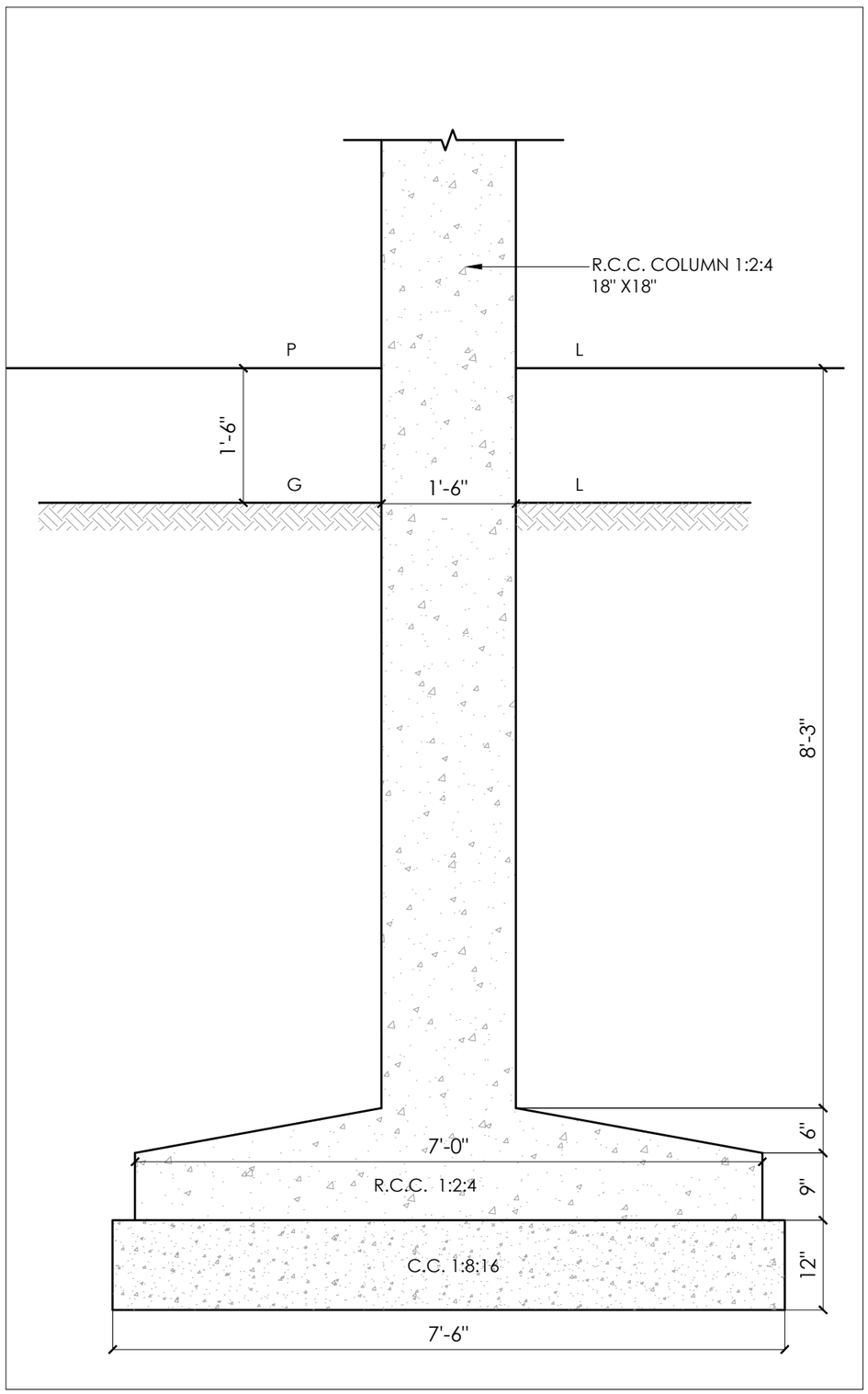
SERIES: ARCHIVAL DIGITISATION

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

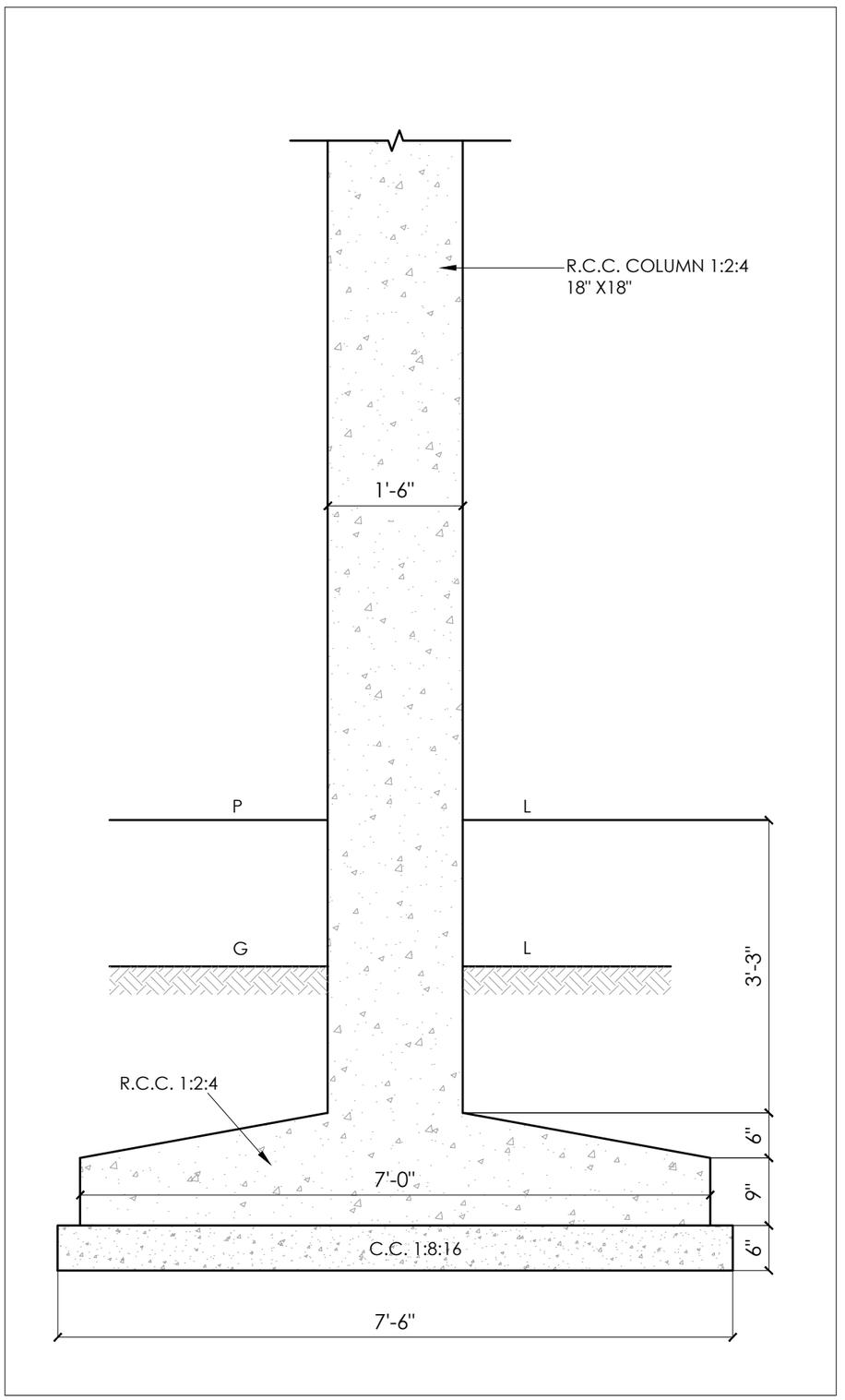
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



SECTION D-D



SECTION P-P

ARCHIVAL DETAILS

ORIGINAL SCALE: ½" =1'

ORIGINAL SHEET SIZE:

DRAWN BY:	CHECKED BY:	DATED
		27. 6. 62

DRAWING NAME:

FILE NO: - 249

PAGE NO. - 22,23,24

SOURCE : PANJAB UNIVERSITY, OFFICE OF EXECUTIVE ENGINEER MR. R.K. RAI

PROJECT:

GANDHI BHAWAN , PANJAB UNIVERSITY

DRAWING SCALE: 1/8 "=1'

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	

DRAWING NAME:

CONSTRUCTION DETAILS, GANDHI BHAWAN

DRAWING NUMBER: GB/OR/D -02

SERIES: ARCHIVAL DIGITISATION

PROJECT:

CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

CLIENT:

PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

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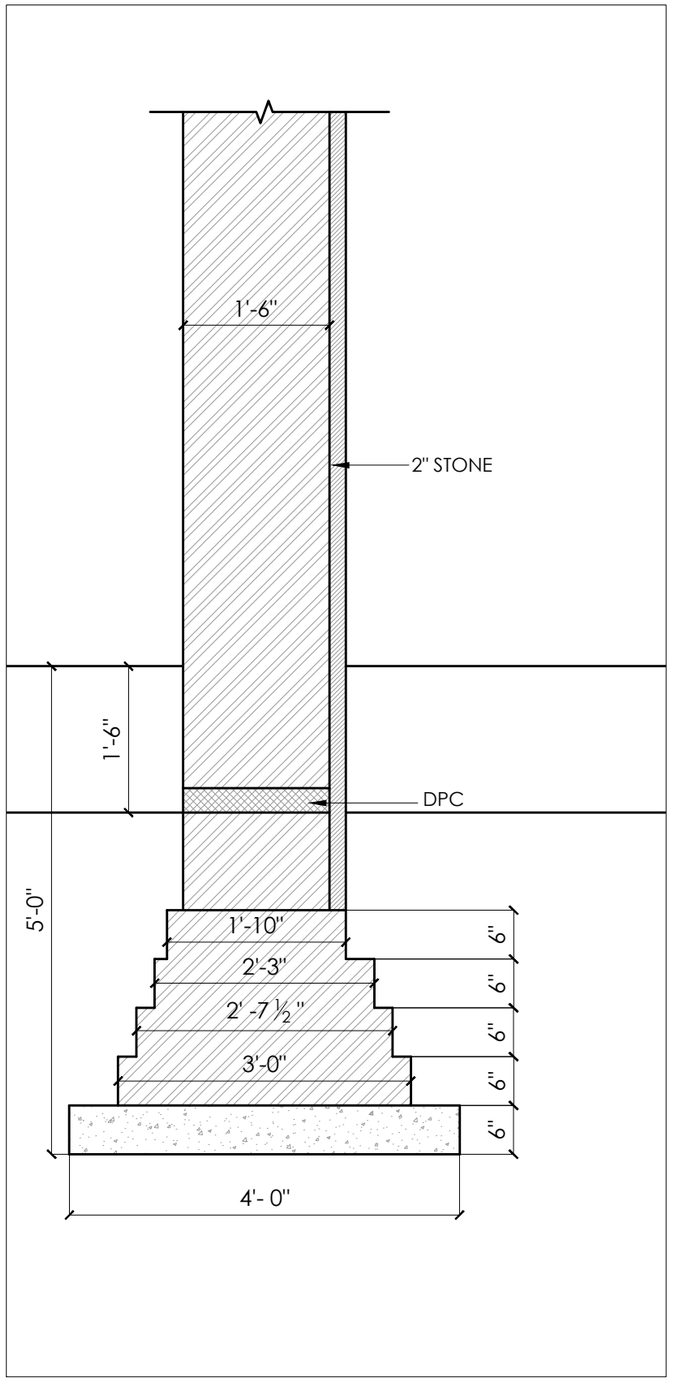
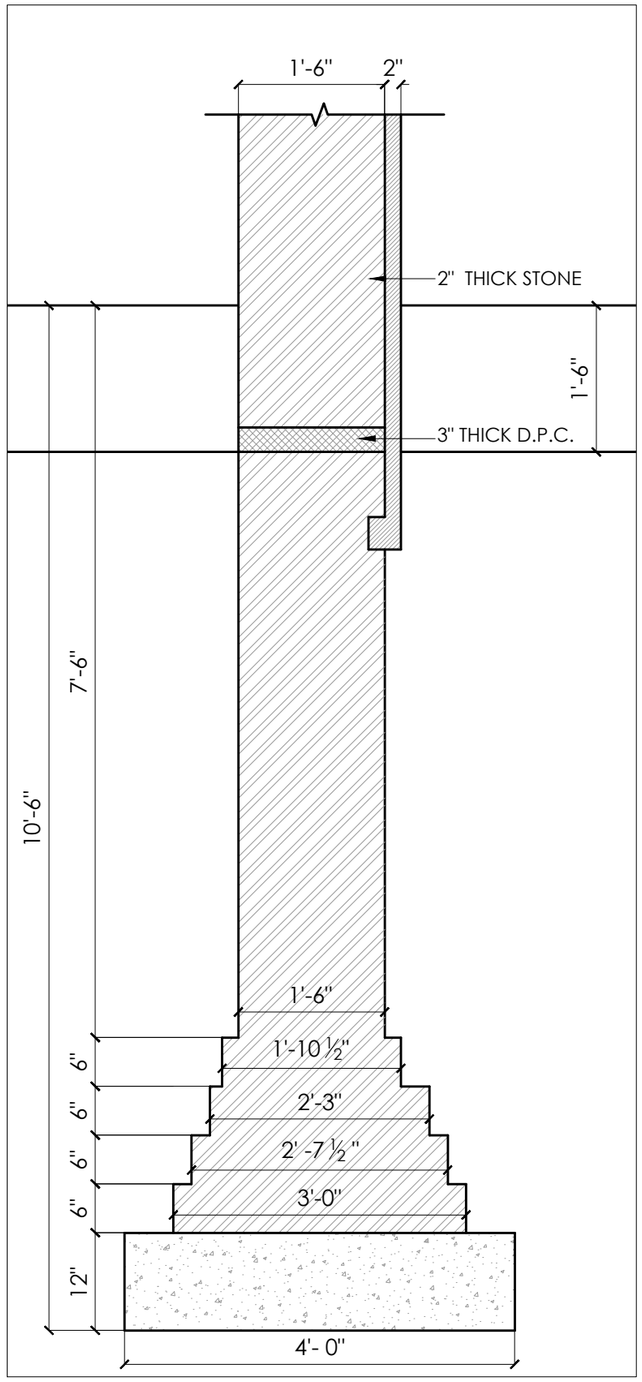
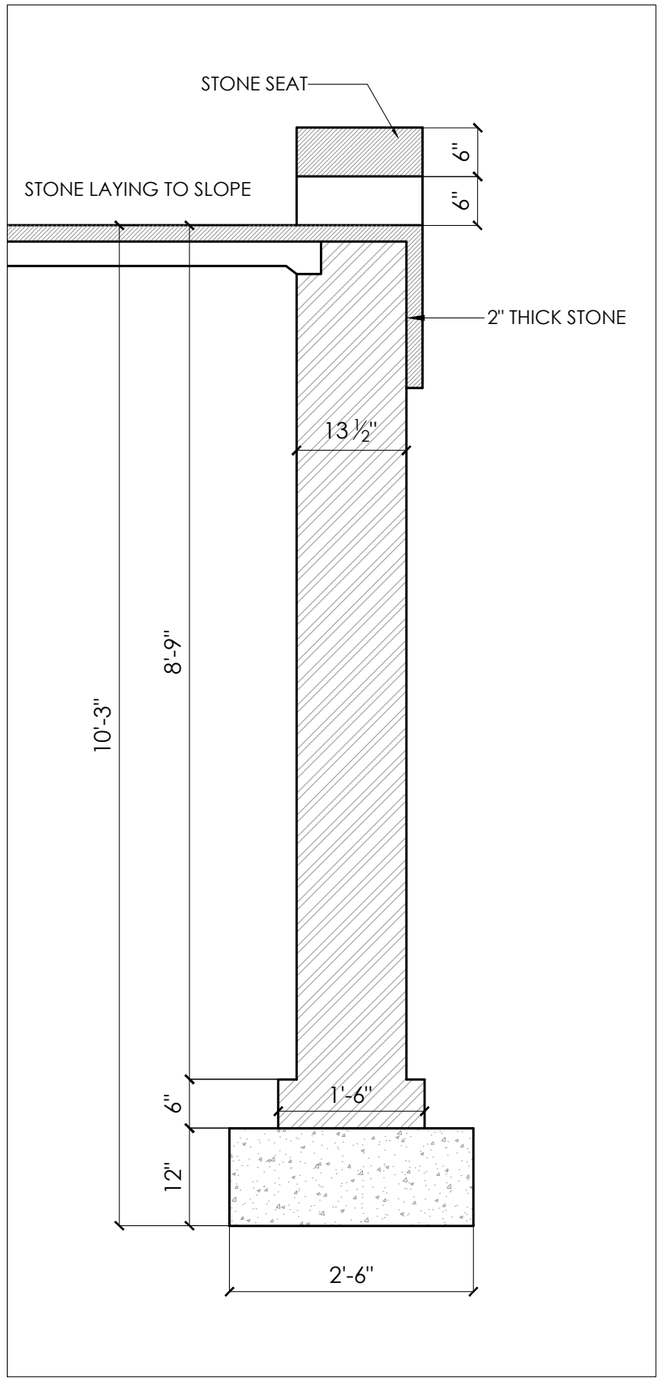
GURGAON-122001



SECTION A-A



SECTION B-B



SECTION C-C

ARCHIVAL DETAILS

ORIGINAL SCALE:

ORIGINAL SHEET SIZE:

DRAWN BY:	CHECKED BY:	DATED
		27. 6. 62

DRAWING NAME:

FILE NO: - 249

PAGE NO. - 25,26

SOURCE : PANJAB UNIVERSITY, OFFICE OF EXECUTIVE ENGINEER MR. R.K. RAI

PROJECT:

GANDHI BHAWAN , PANJAB UNIVERSITY

DRAWING SCALE: 1/8 "=1'

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	

DRAWING NAME:
CONSTRUCTION DETAILS, GANDHI BHAWAN

DRAWING NUMBER: GB/OR/D -01

SERIES: ARCHIVAL DIGITISATION

PROJECT:

CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

CLIENT:

PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

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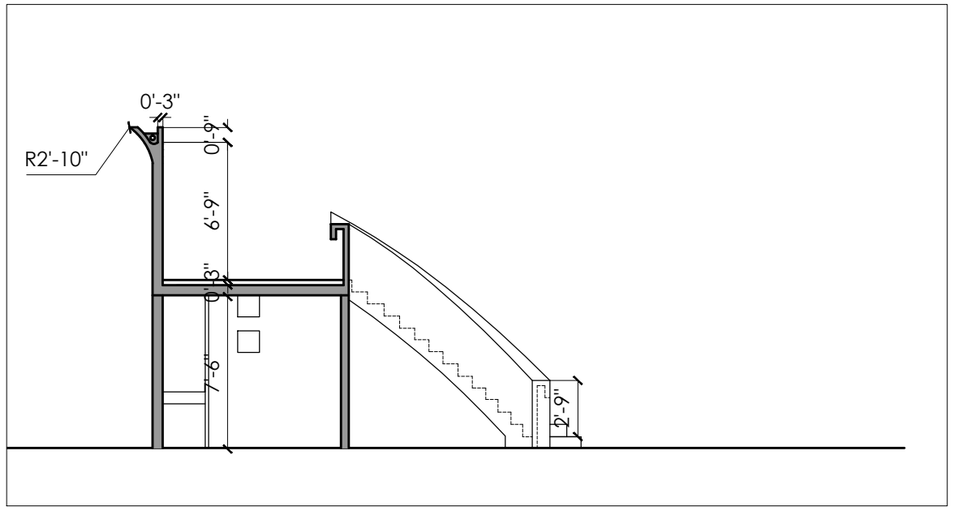
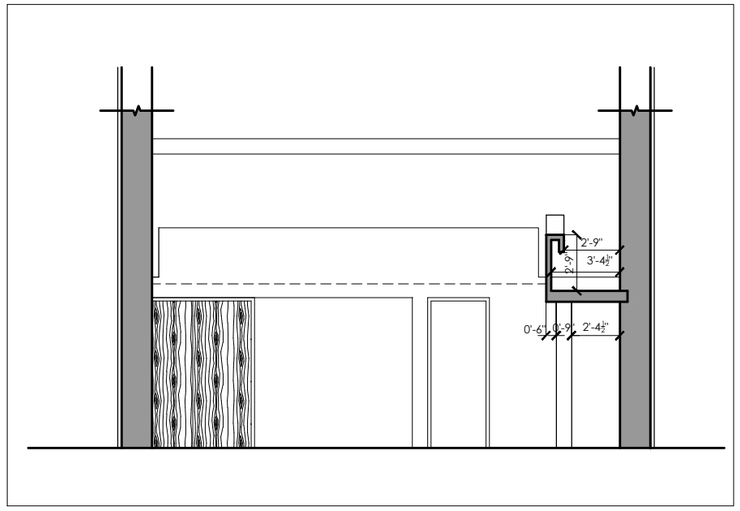
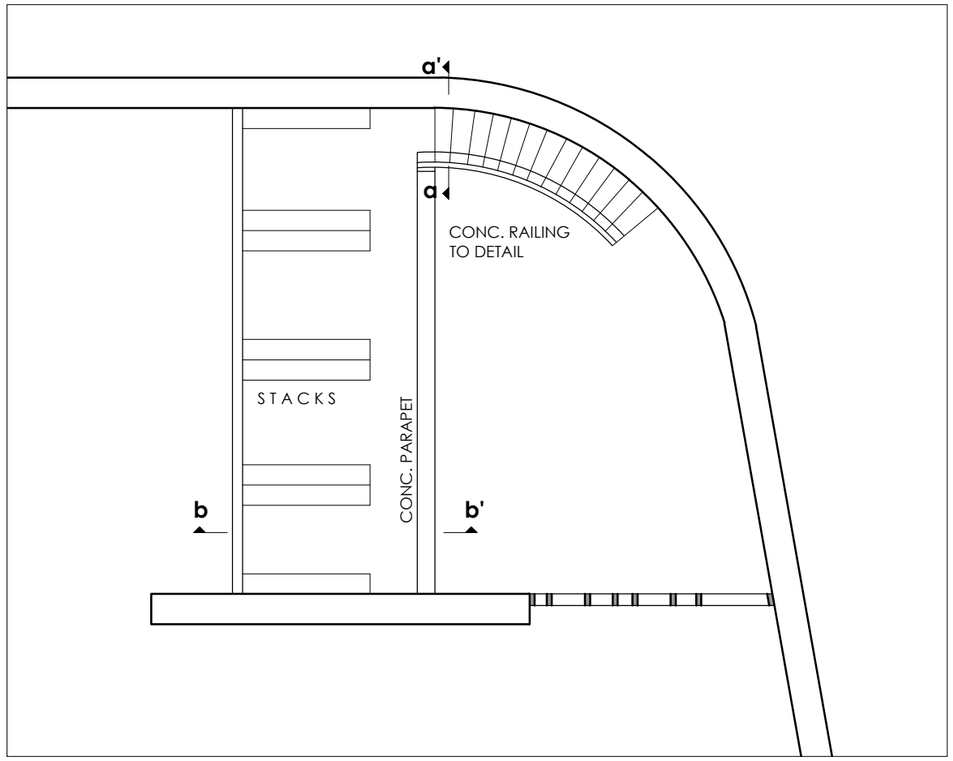


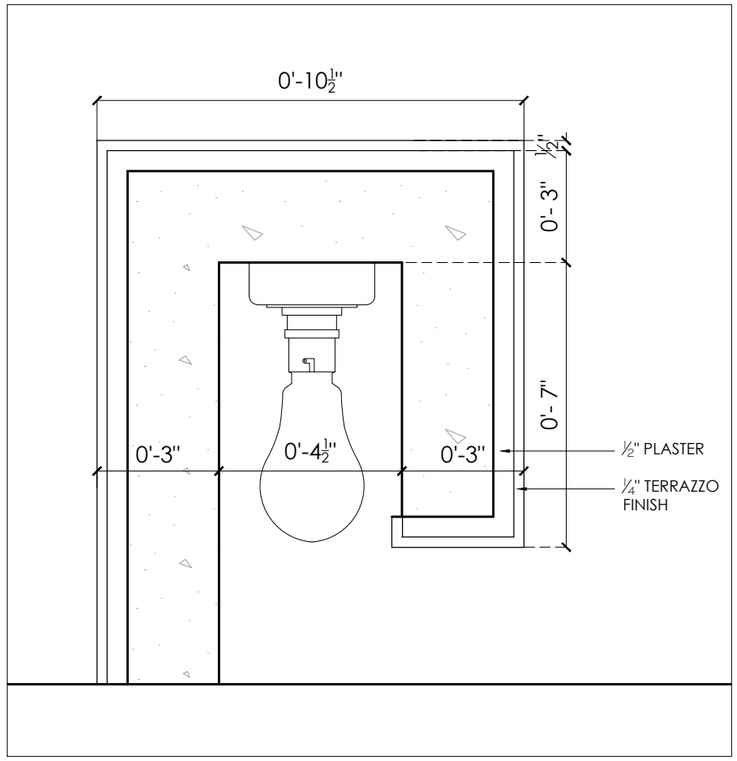
SECTION AT b-b'



SECTIONAL ELEVATION AT a-a'



DETAIL OF STAIRCASE



F.S. DETAIL OF RAILING (SCALE 1:4)

ARCHIVAL DETAILS

ORIGINAL SCALE: 1½" =1'

ORIGINAL SHEET SIZE: A2

DRAWN BY:	CHECKED BY:	DATED
		27. 6. 62

DRAWING NAME:
DETAIL OF STAIRCASE IN LIBRARY

JOB NO.: 17

DRAWING NO.: 27

SOURCE : PANJAB UNIVERSITY, OFFICE OF CHIEF ARCHITECT HARPREET SINGH

PROJECT:
GANDHI BHAWAN , PANJAB UNIVERSITY

DRAWING SCALE: 1/8 "=1'

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	

DRAWING NAME:
CONSTRUCTION DETAILS, GANDHI BHAWAN

DRAWING NUMBER: GB/OR/D -07

SERIES: ARCHIVAL DIGITISATION

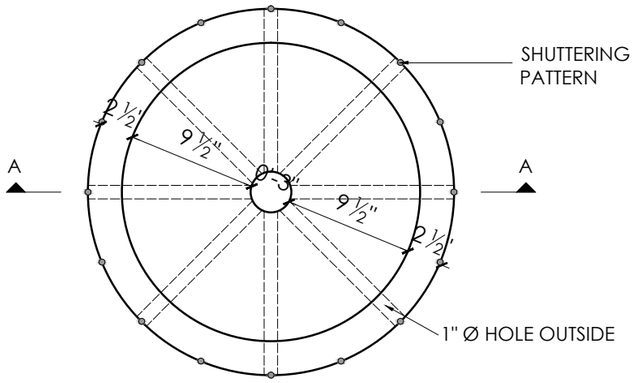
PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

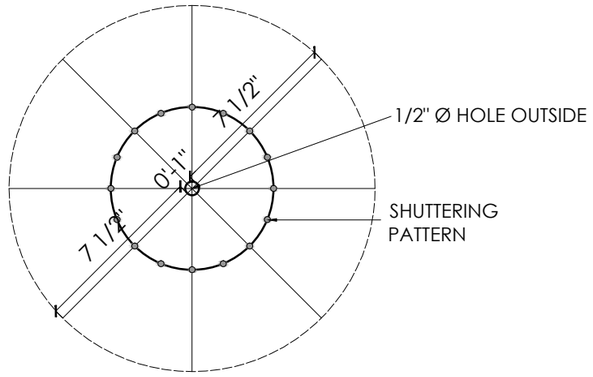
CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

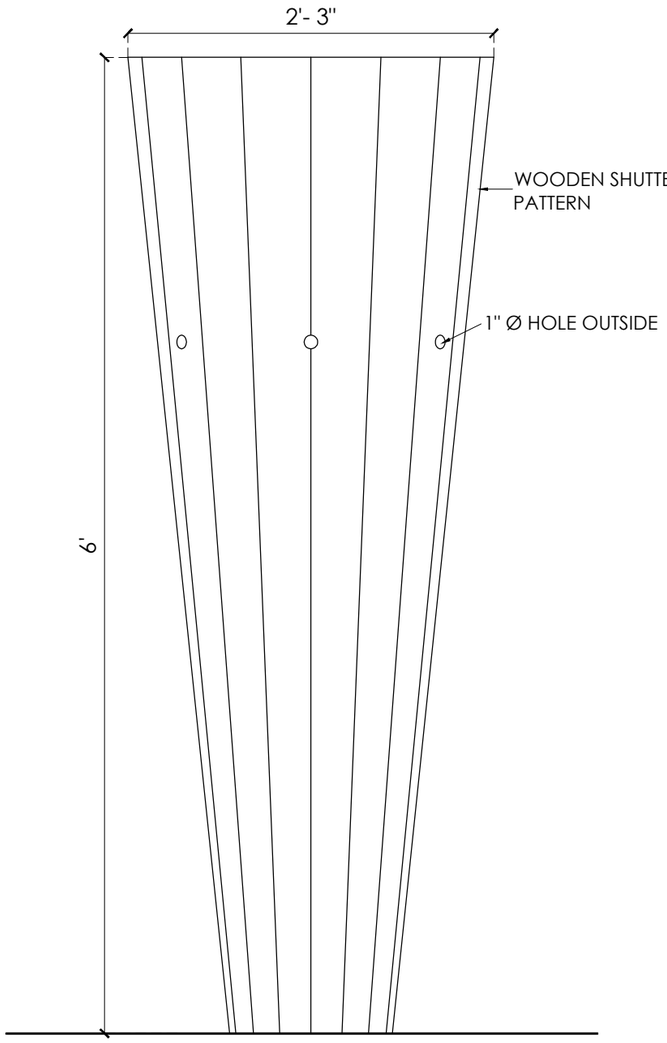
A-258, SOUTH CITY -1
GURGAON-122001



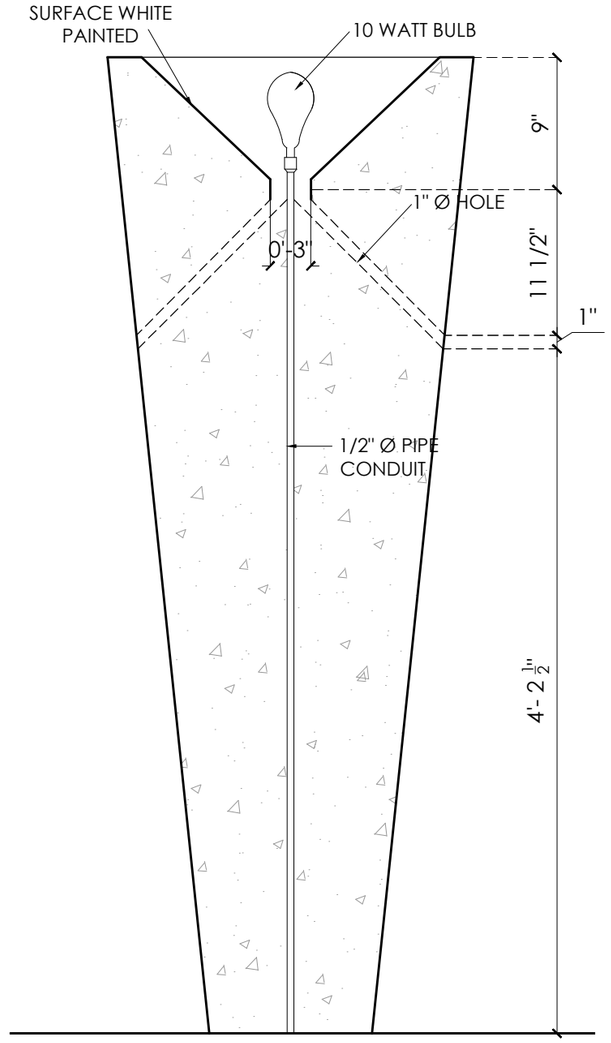
PLAN AT TOP



PLAN AT THE BOTTOM



ELEVATION



SECTION AT A-A'

ARCHIVAL DETAILS

ORIGINAL SCALE: 1½" =1'

ORIGINAL SHEET SIZE: A2

DRAWN BY:	CHECKED BY:	DATED
		27. 6. 62

DRAWING NAME:
DETAIL OF PEDESTAL LIGHT

DRAWING NO.: 28

PROJECT:
GANDHI BHAWAN , PANJAB UNIVERSITY

DRAWING SCALE: 1"=1'

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	

DRAWING NAME:
CONSTRUCTION DETAILS, GANDHI BHAWAN

DRAWING NUMBER: GB/OR/D -08

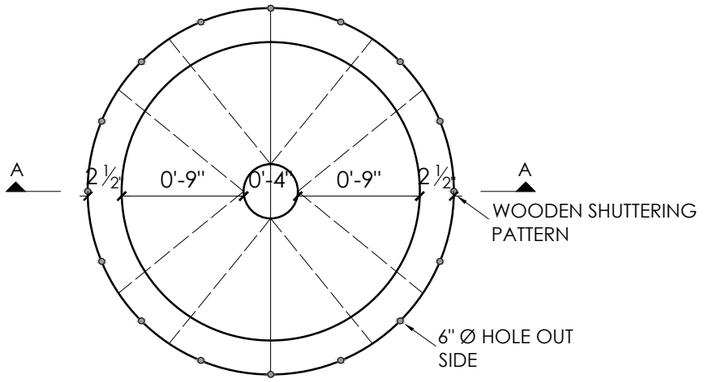
SERIES: ARCHIVAL DIGITISATION

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

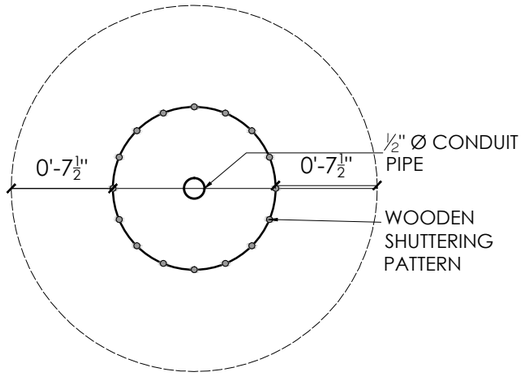
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

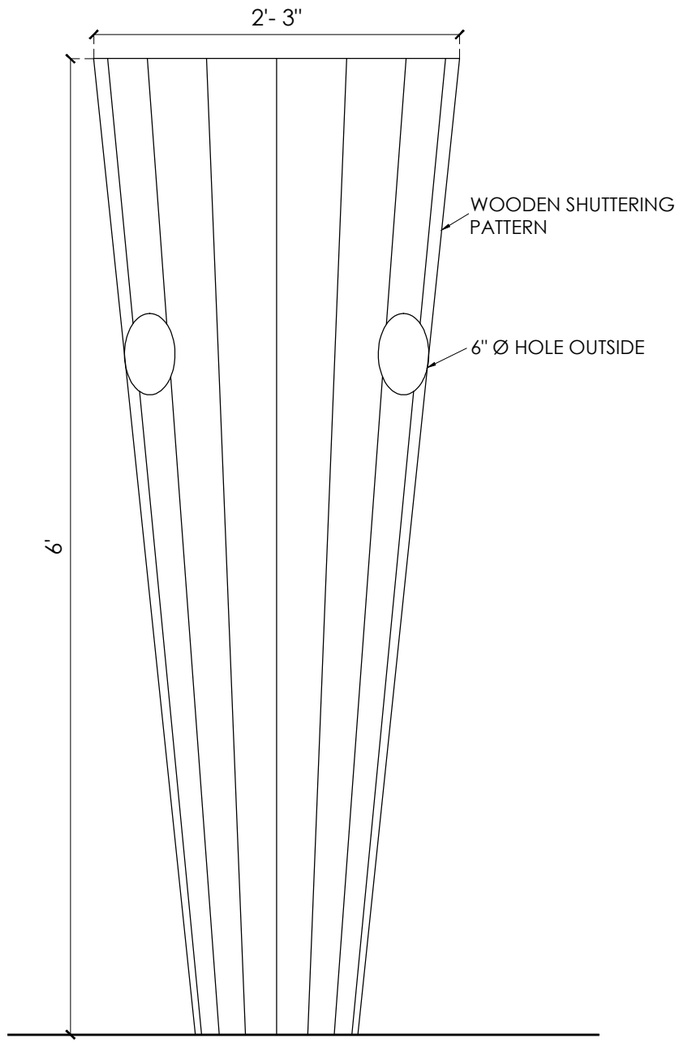
A-258, SOUTH CITY -1
GURGAON-122001



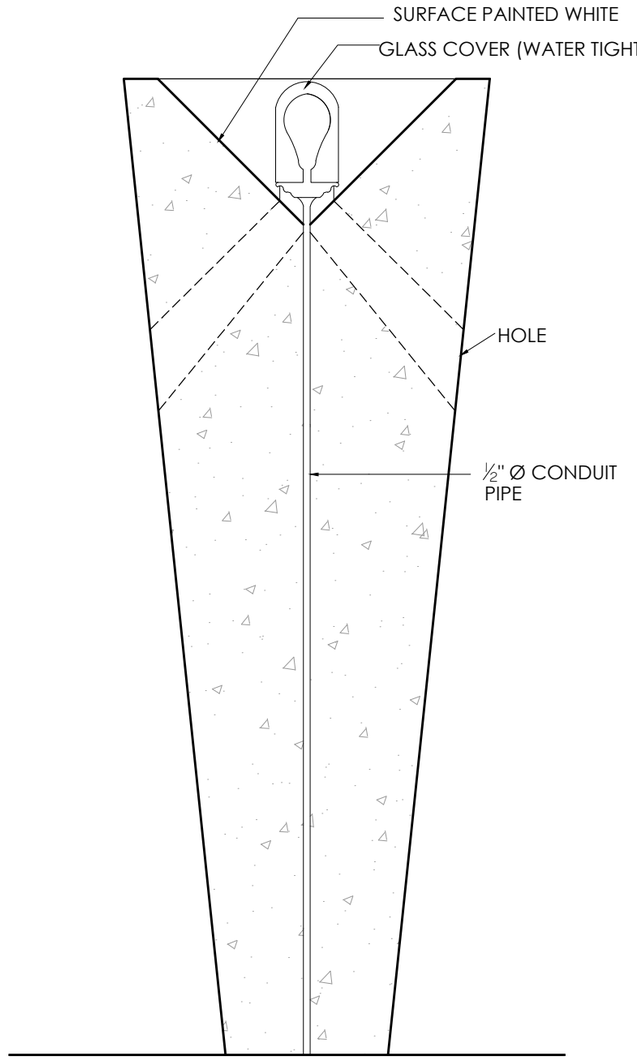
PLAN AT TOP



PLAN AT THE BOTTOM



ELEVATION



SECTION AT A-A'

ARCHIVAL DETAILS

ORIGINAL SCALE: 1½" =1'

ORIGINAL SHEET SIZE: A2

DRAWN BY:	CHECKED BY:	DATED
		9. 7. 62

DRAWING NAME:
DETAIL OF PEDESTRIAN LIGHT

THE DRAWING SUPERCEDE DRG. NO. 28

DRAWING NO.: 30

PROJECT:
GANDHI BHAWAN , PANJAB UNIVERSITY

SOURCE:
CONSTRUCTION OFFICE, PANJAB UNIVERSITY

NOTE:
INSPECTION BOX SHOULD BE PUT IN THE FLOOR WITH THE PRIOR CONSULTATION OF THE ARCHITECT

DRAWING SCALE: 1"=1'

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	

DRAWING NAME:
CONSTRUCTION DETAILS, GANDHI BHAWAN

DRAWING NUMBER: GB/OR/D -09

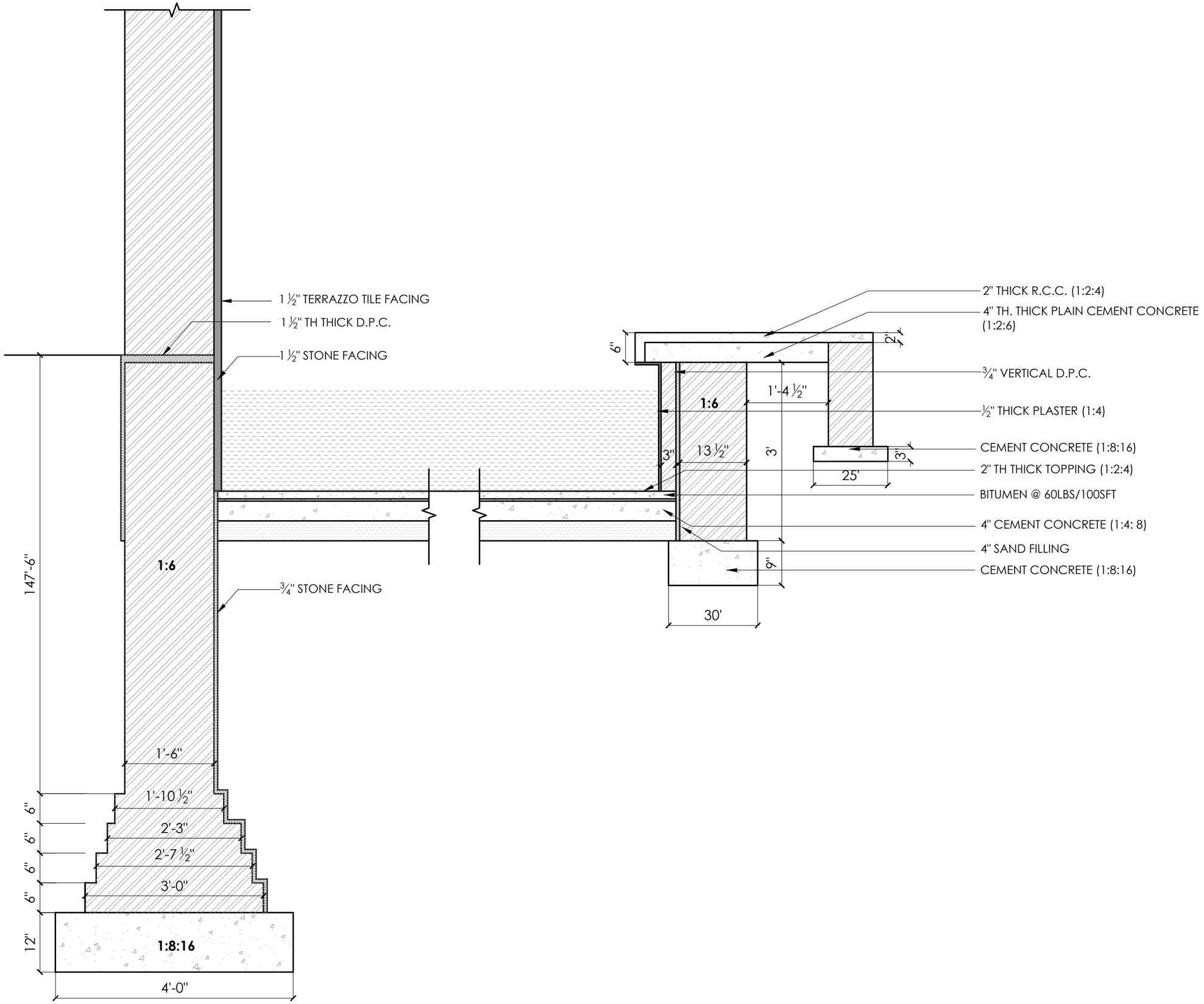
SERIES: ARCHIVAL DIGITISATION

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



SECTION A-A

ARCHIVAL DETAILS

ORIGINAL SCALE: 1½" =1'

ORIGINAL SHEET SIZE: A2

DRAWN BY:	CHECKED BY:	DATED
		27. 6. 62

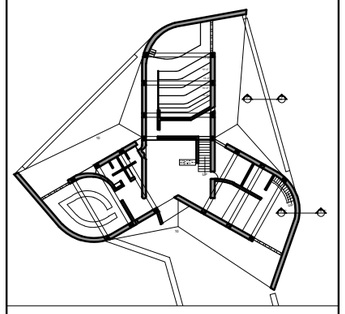
DRAWING NAME:

FILE NO: - 328

SOURCE : PANJAB UNIVERSITY, OFFICE OF EXECUTIVE ENGINEER MR. R.K. RAI

PROJECT:

GANDHI BHAWAN , PANJAB UNIVERSITY



KEY PLAN

DRAWING SCALE: 1/8 "=1'

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	

DRAWING NAME:
CONSTRUCTION DETAILS, GANDHI BHAWAN

DRAWING NUMBER: GB/OR/D -04

SERIES: ARCHIVAL DIGITISATION

PROJECT:

CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

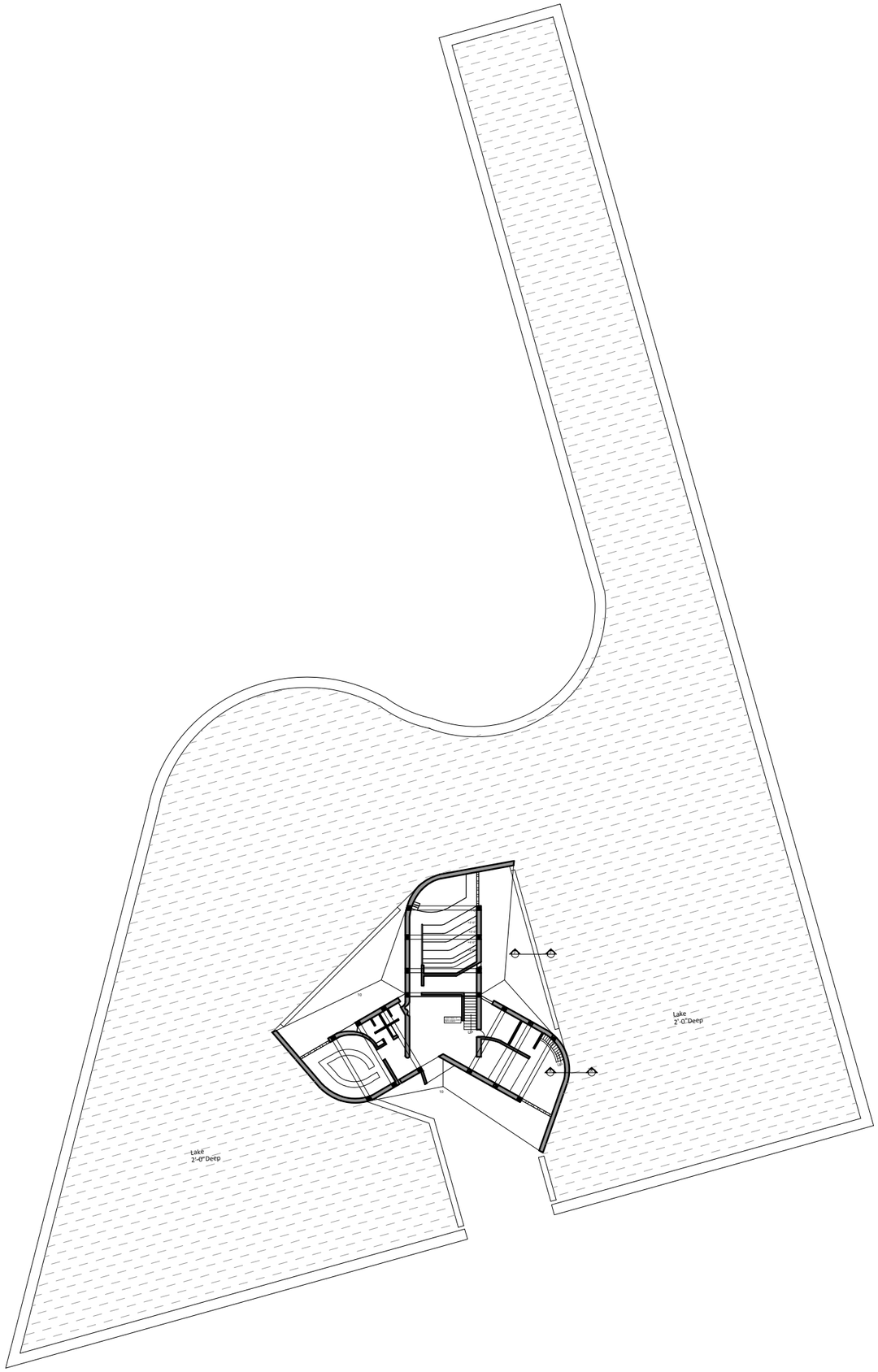
CLIENT:

PANJAB UNIVERSITY, CHANDIGARH

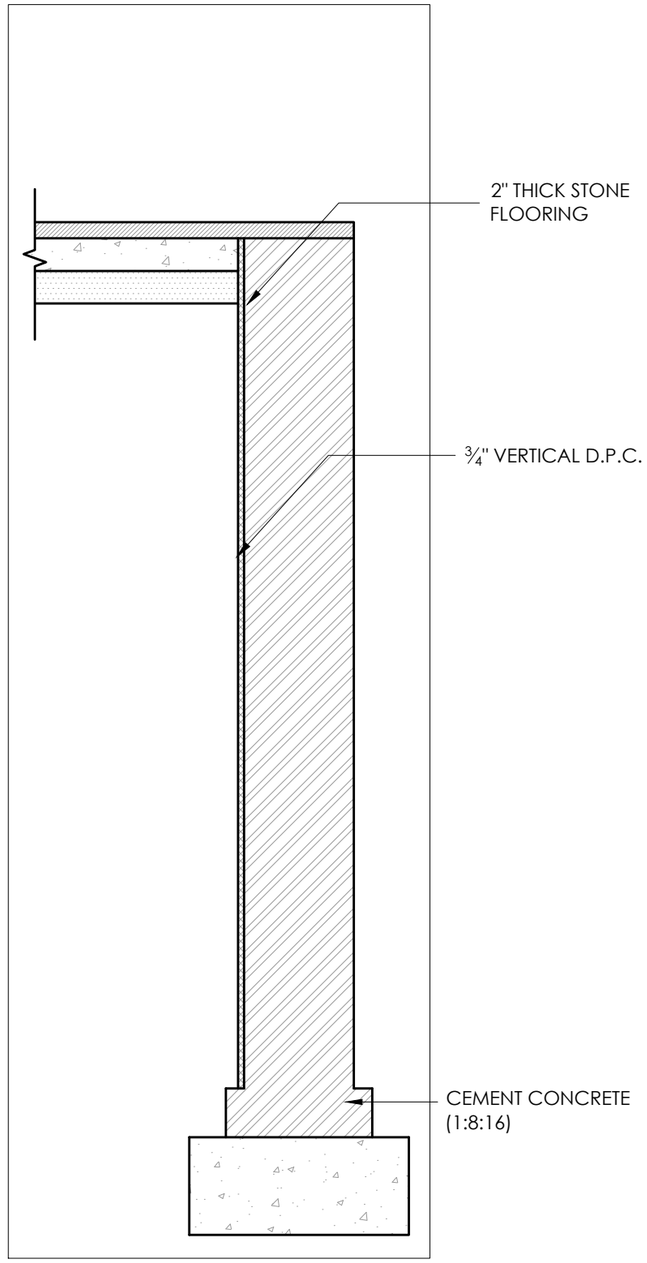
CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



PLAN OF LAKE



SECTION P-P

ARCHIVAL DETAILS

ORIGINAL SCALE: 1½" =1'

ORIGINAL SHEET SIZE: A2

DRAWN BY:	CHECKED BY:	DATED
		27. 6. 62

DRAWING NAME:

FILE NO: - 328

SOURCE : PANJAB UNIVERSITY, OFFICE OF EXECUTIVE ENGINEER MR. R.K. RAI

PROJECT:

GANDHI BHAWAN , PANJAB UNIVERSITY

DRAWING SCALE: 1/8 "=1'

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	

DRAWING NAME:

CONSTRUCTION DETAILS, GANDHI BHAWAN

DRAWING NUMBER: GB/OR/D -03

SERIES: ARCHIVAL DIGITISATION

PROJECT:

CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

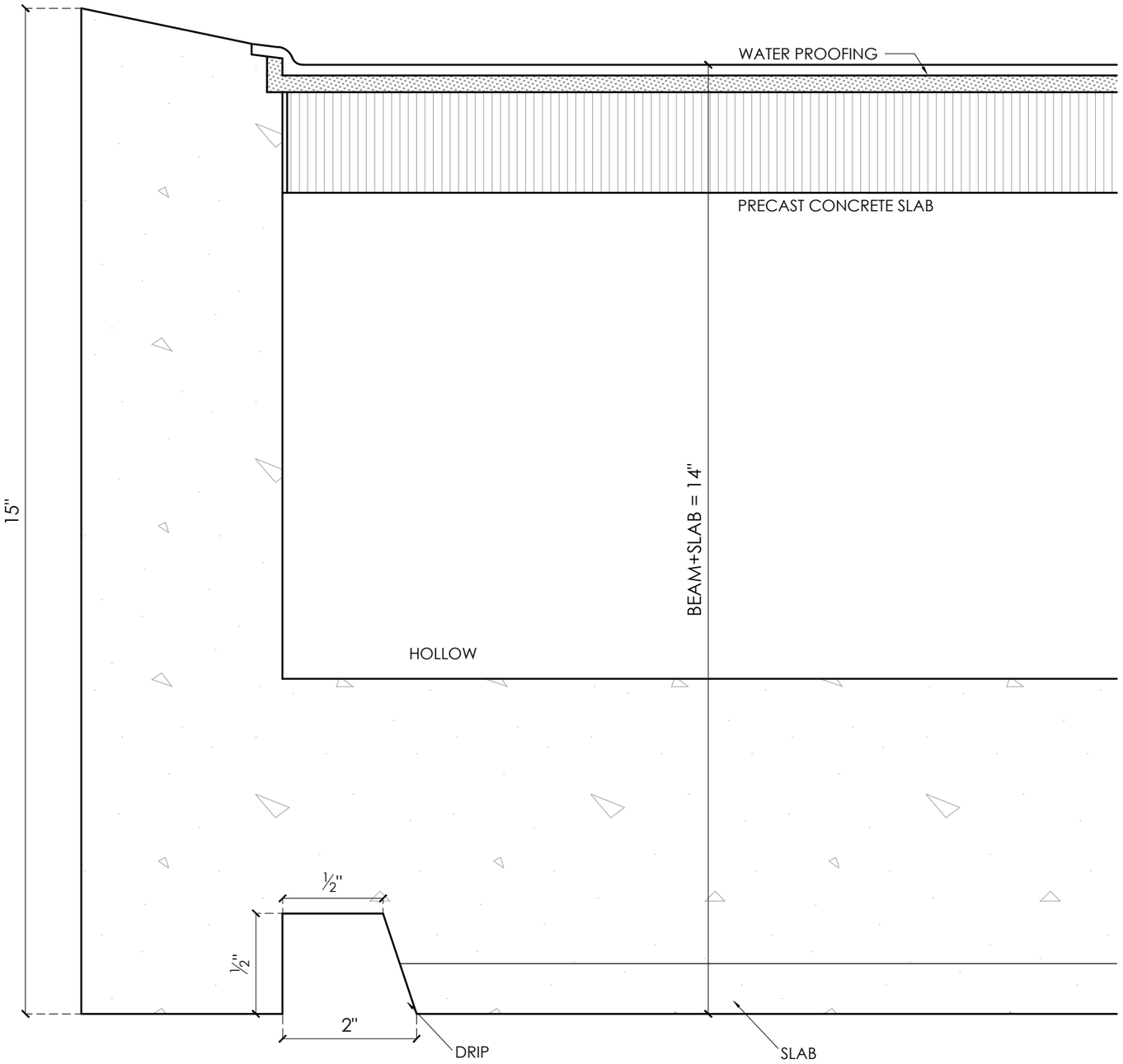
CLIENT:

PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



FULL SIZE PROFILE OF FACIA AT THE END OF THE SLAB

ARCHIVAL DETAILS

ORIGINAL SCALE: FULL SIZE(1:1)

ORIGINAL SHEET SIZE: A1

DRAWN BY:	CHECKED BY:	DATED

DRAWING NAME:
FACIA DETAIL

JOB NO.: 17

DRAWING NO.: 16

SOURCE : PANJAB UNIVERSITY, OFFICE OF CHIEF ARCHITECT HARPREET SINGH

PROJECT:
GANDHI BHAWAN , PANJAB UNIVERSITY

DRAWING SCALE: 1:2

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	

DRAWING NAME:
CONSTRUCTION DETAILS, GANDHI BHAWAN

DRAWING NUMBER: GB/OR/D -06

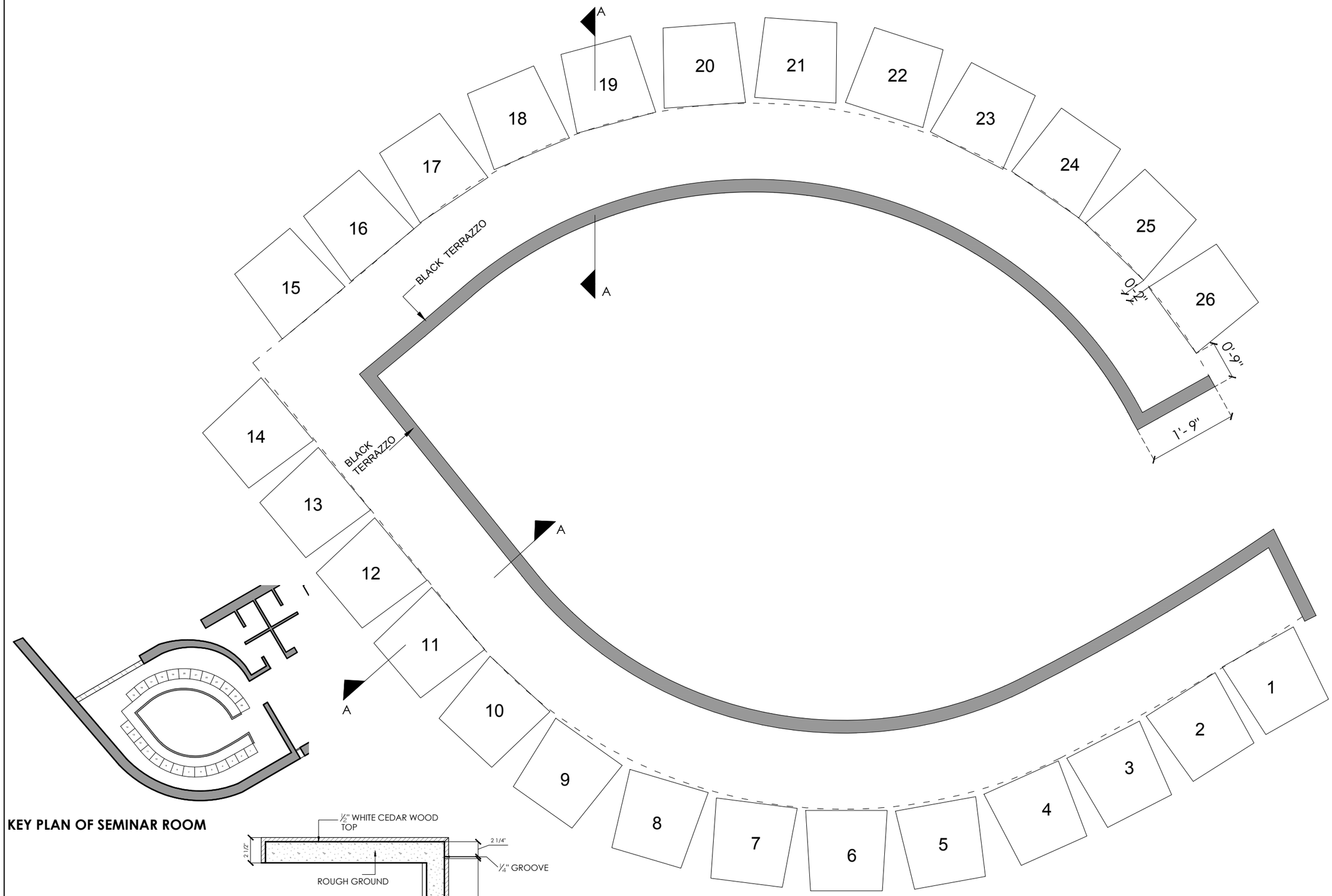
SERIES: ARCHIVAL DIGITISATION

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

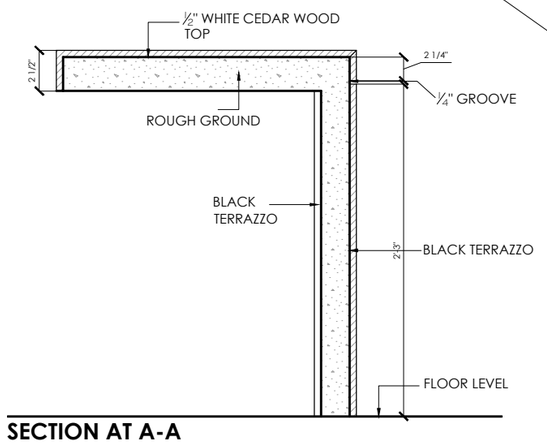
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



KEY PLAN OF SEMINAR ROOM



SECTION AT A-A

DETAIL OF SEATING ARRANGEMENT

ARCHIVAL DETAILS

ORIGINAL SCALE: 1/4" =1' & 1" = 1'

ORIGINAL SHEET SIZE: A1

DRAWN BY:	CHECKED BY:	DATED
		28.7.62

DRAWING NAME:
DETAIL OF SEATING ARRANGEMENT IN SEMINAR HALL

JOB NO.: 17

DRAWING NO.: 34

SOURCE : PANJAB UNIVERSITY, OFFICE OF CHIEF ARCHITECT HARPREET SINGH

PROJECT:
GANDHI BHAWAN , PANJAB UNIVERSITY

DRAWING SCALE: 1/2" =1'

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	

DRAWING NAME:
CONSTRUCTION DETAILS, GANDHI BHAWAN

DRAWING NUMBER: GB/OR/D -10

SERIES: ARCHIVAL DIGITISATION

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001

2. ARCHITECTURAL DOCUMENTATION DRAWINGS

AUDITORIUM

ARTS BLOCK

Dr. S.S. Bhatnagar Univ. Inst. of ChemicaL Engg. & Tech.

FINE ARTS MUSEUM

14115

WATER OUTLET FOR OVERFLOW

WATER INLET

19000

R19723

R19723

17400

DRAINAGE OUT VALVE

WATER INLET VALVE

33111

10735

Towards Gate no.-1

Towards A.C.Joshi Library

Towards Department of Gandhian & Peace studies & Fine Arts Museum

DEPARTMENT OF GANDHIAN & PEACE STUDIES

Open Ground

rds Student Center

NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS). Basic Dimensions have been cross-reffered on site and archive drawings.
2. All dimensions are in mm (millimeter).

DRAWING SCALE: 1:500

GRAPHIC SCALE:

2M 0M 2M 4M 8M 16M

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	SUCHANDRA BARDHAN	27.09.2016

DRAWING NAME:
LANDSCAPE PLAN

DRAWING NUMBER: GB/MD/P-01

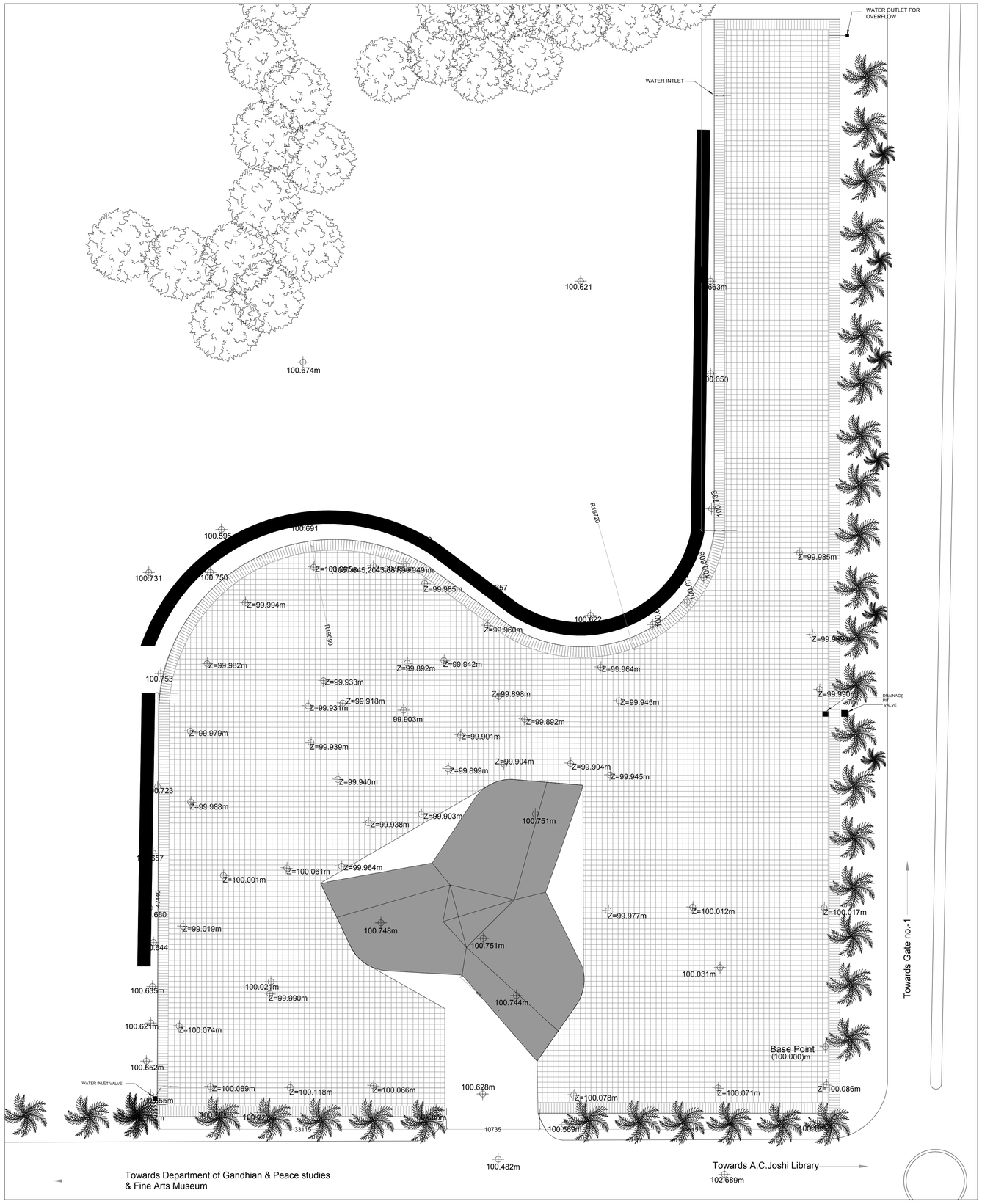
SERIES: DOCUMENTATION DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings.
2. All dimensions are in mm (millimeter).

DRAWING SCALE: 1:250

GRAPHIC SCALE:

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	SUCHANDRA BARDHAN	27.09.2016

DRAWING NAME: POOL PLAN

DRAWING NUMBER: GB/MD/P-02

SERIES: DOCUMENTATION DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

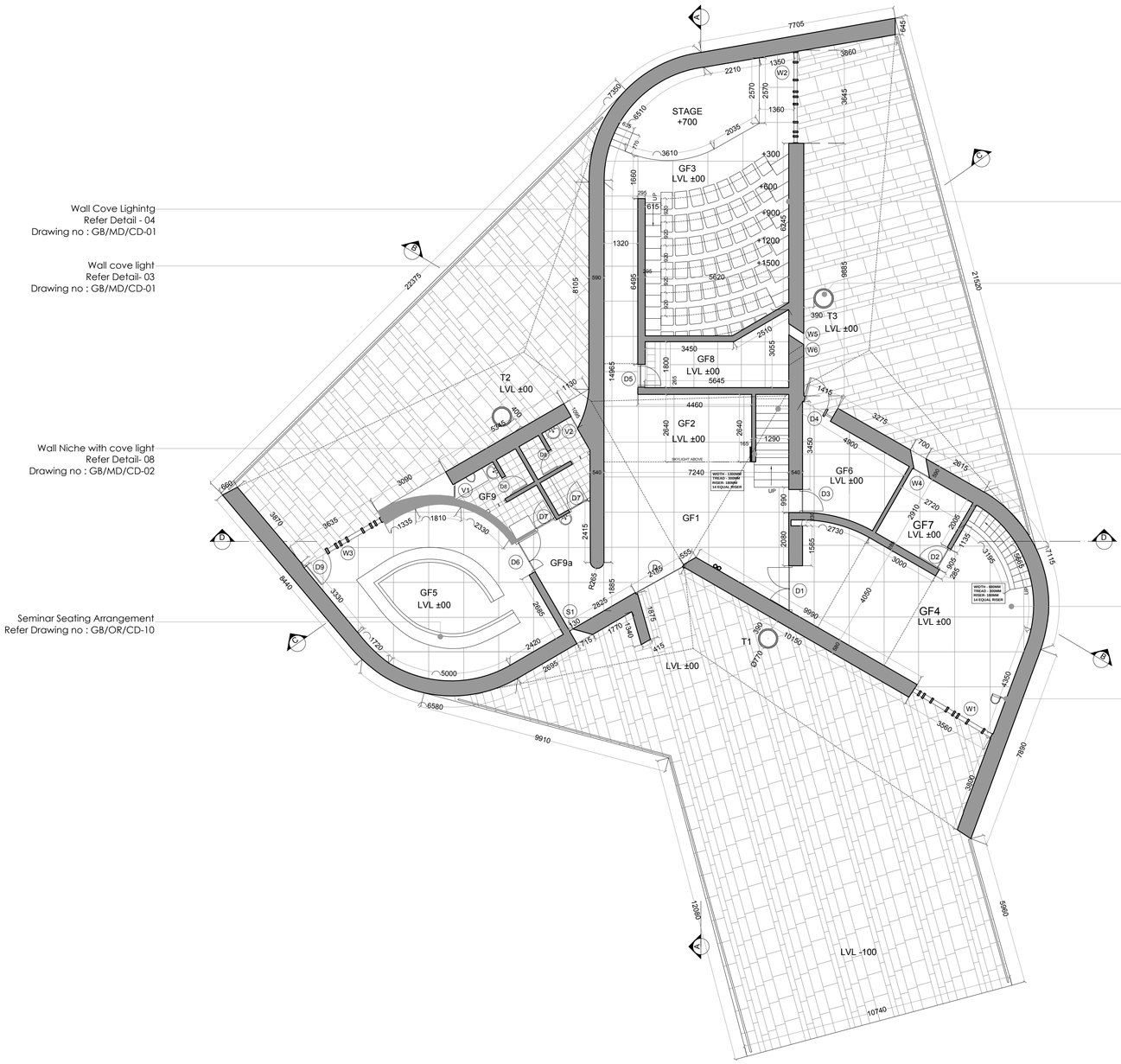
A-258, SOUTH CITY -1
GURGAON-122001

Wall Cove Lighintg
Refer Detail - 04
Drawing no : GB/MD/CD-01

Wall cove light
Refer Detail- 03
Drawing no : GB/MD/CD-01

Wall Niche with cove light
Refer Detail- 08
Drawing no : GB/MD/CD-02

Seminar Seating Arrangement
Refer Drawing no : GB/OR/CD-10



Wall cove lighting
Refer Detail - 02
Drawing no : GB/MD/CD-01

Pedestal Detail
Refer Drawing no : GB/OR/CD-09

Staircase Detail
Refer Drawing no : GB/MD/CD-03

Signage Detail
Refer Detail- 06
Drawing no : GB/MD/CD-03

Library Details
Refer Drawing no : GB/OR/CD-07

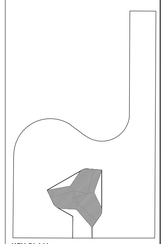
Wall Lighting Fixture
Refer Detail- 01
Drawing no : GB/MD/CD-01

NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)

LEGEND		AREA (SQM)
GF1.	Entrance Lobby	33.6 Sqm
GF2.	Exhibition	20 sqm
GF3.	Lecture Hall	83.6 Sqm
GF4.	Library	48 Sqm
GF5.	Seminar Room	44.27 Sqm
GF6.	Director's Room	13 Sqm
GF7.	Research Council	7.9 Sqm
GF8.	Store	11.5 Sqm
GF9.	Lavatory/Toilets	14.5 Sqm
T1.	Terrace 1	193 Sqm
T2.	Terrace 2	97.2 Sqm
T3.	Terrace 3	95.3 Sqm

DOOR SCHEDULE IN MM			
NAME	HEIGHT	WIDHT	SILL
D	2300	2110	--
D1	2280	1770	--
D2	2235	905	--
D3	2300	905	--
D4	2385	915	--
D5	1860	885	--
D6	2260	1355	--
D7	2260	915	--
D8	2120	755	--
D9	2240	1080	--
D10	2065	755	--
W1	3530	2500	00
W2	3605	2585	00
W3	2515	2480	00
W4	2180	700	00
W5	430	430	845
W6	430	430	1275
W7	1150	410	1410
W8	565	410	845
W9	225	4600	2000
S1	160	2315	50
S2	195	2030	00
V1	920	410	1500
V2	695	520	1500



KEY PLAN

DRAWING SCALE: 1:250

GRAPHIC SCALE:
0M 2M 4M

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	SUCHANDRA BARDHAN	27.09.2016

DRAWING NAME:
POOL PLAN

DRAWING NUMBER: GB/MD/P-03

SERIES: DOCUMENTATION DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

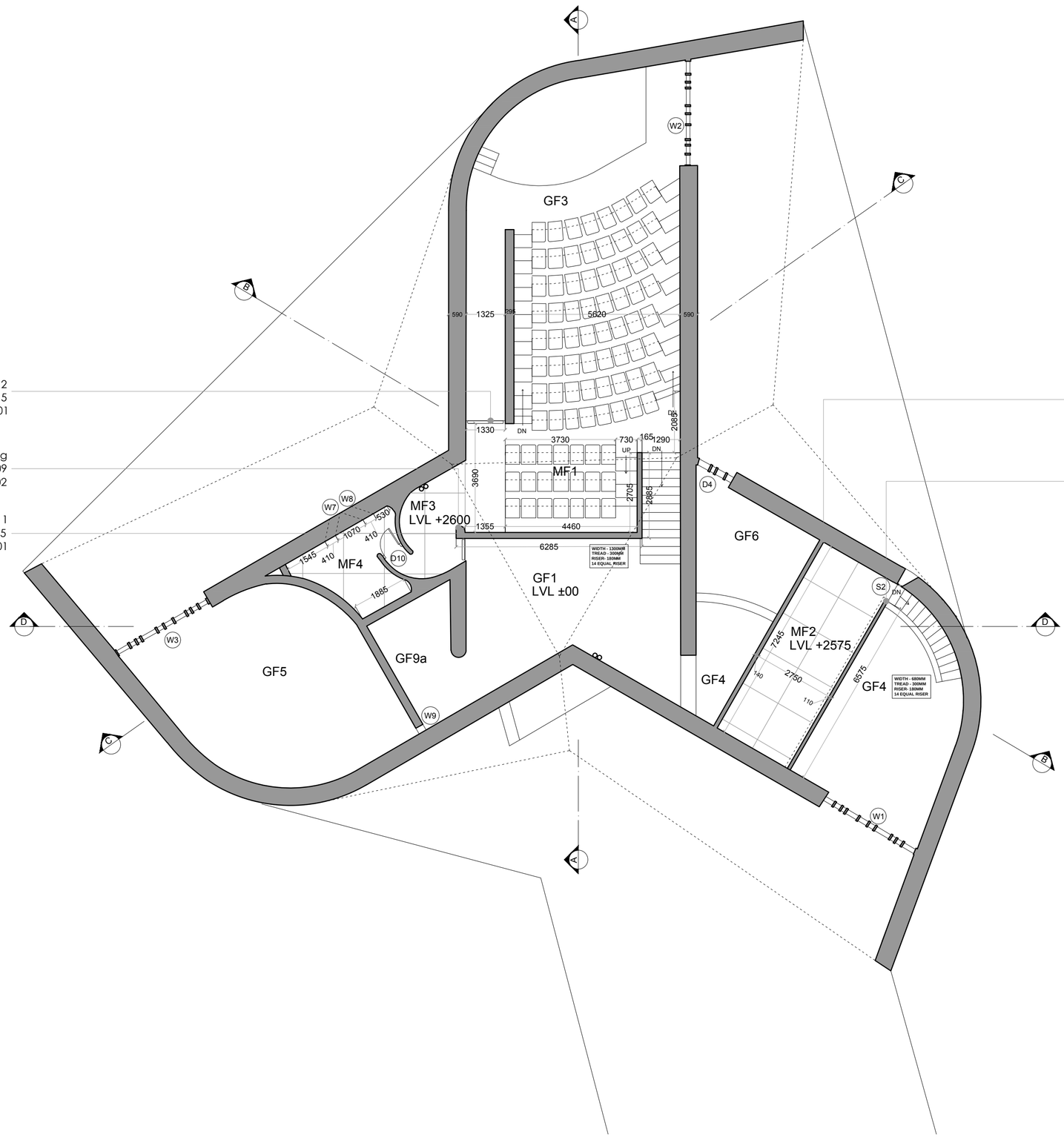
CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001

Mild Steel Railing - 2
Refer Details no.- 5
Drawing no : GB/MD/CD-01

Wall Cove Lighting
Refer Details no.- 09
Drawing no : GB/MD/CD-02

Mild Steel Railing - 1
Refer Details no.- 5
Drawing no : GB/MD/CD-01



Wall Cove Lighting
Refer Details no.- 10
Drawing no : GB/MD/CD-02

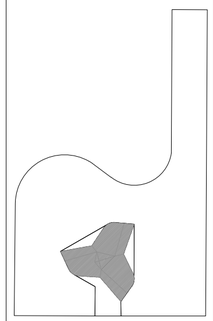
Wall Cove Lighting
Refer Details no.- 4
Drawing no : GB/MD/CD-01

LEGEND		AREA (SQM)
GF1.	Entrance Lobby	33.6 Sqm
GF2.	Exhibition	20 sqm
GF3.	Lecture Hall	83.6 Sqm
GF4.	Library	48 Sqm
GF5.	Seminar Room	44.27 Sqm
GF6.	Director's Room	13 Sqm
GF7.	Research Council	7.9 Sqm
GF8.	Store	11.5 Sqm
GF9.	Lavatory/Toilets	14.5 Sqm
T1.	Terrace 1	193 Sqm
T2.	Terrace 2	97.2 Sqm
T3.	Terrace 3	95.3 Sqm

DOOR SCHEDULE IN MM			
NAME	HEIGHT	WIDHT	SILL
D	2300	2110	--
D1	2280	1770	--
D2	2235	905	--
D3	2300	905	--
D4	2385	915	--
D5	1860	885	--
D6	2260	1355	--
D7	2260	915	--
D8	2120	755	--
D9	2240	1080	--
D10	2065	755	--
W1	3530	2500	00
W2	3605	2585	00
W3	2515	2480	00
W4	2180	700	00
W5	430	430	845
W6	430	430	1275
W7	1150	410	1410
W8	565	410	845
W9	225	4600	2000
S1	160	2315	50
S2	195	2030	00
V1	920	410	1500
V2	695	520	1500

NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings.
2. All dimensions are in mm (millimeter)



KEY PLAN

DRAWING SCALE: 1:100

GRAPHIC SCALE:
0M 2M 4M

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	SUCHANDRA BARDHAN	27.09.2016

DRAWING NAME:
LANDSCAPE PLAN

DRAWING NUMBER: GB/MD/P-04

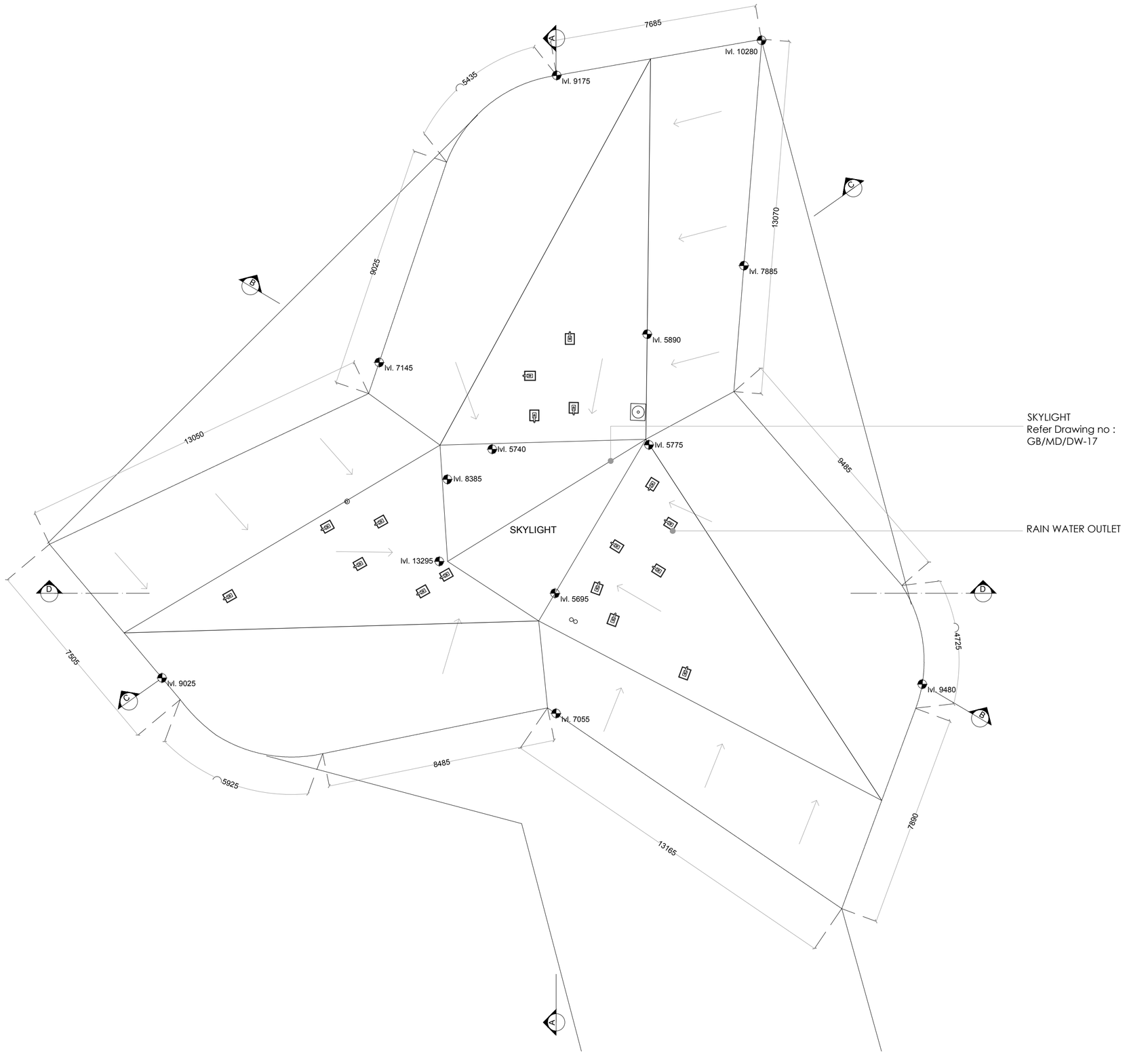
SERIES: DOCUMENTATION DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

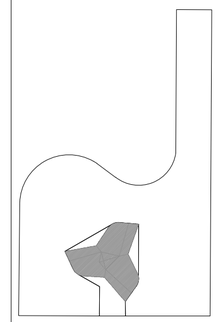
CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)



KEY PLAN

DRAWING SCALE: 1:100

GRAPHIC SCALE:

0M 2M 4M

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	27.09.2016

DRAWING NAME:
ROOF PLAN

DRAWING NUMBER: GB/MD/P-05

SERIES: DOCUMENTATION DRAWINGS

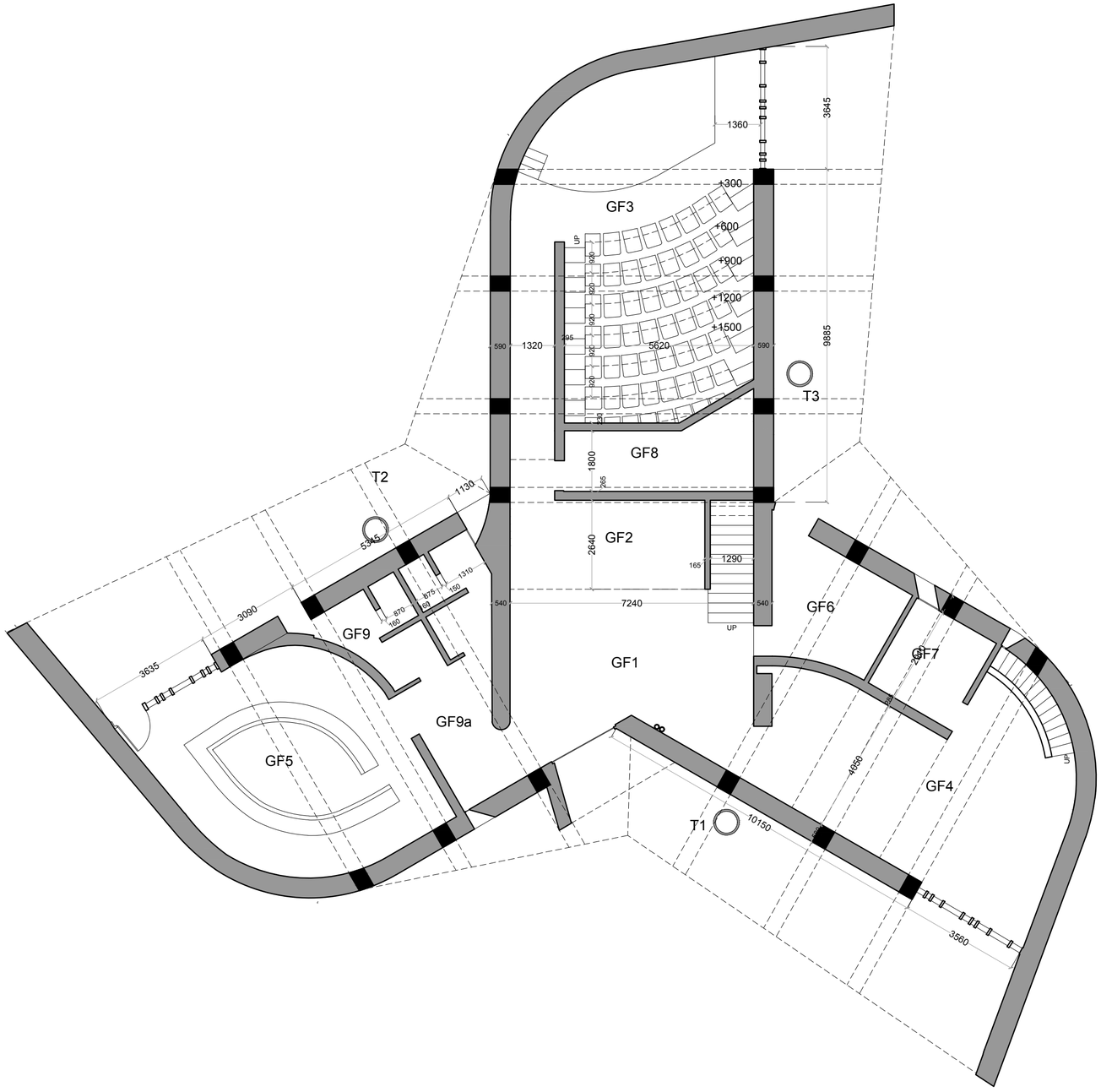
PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

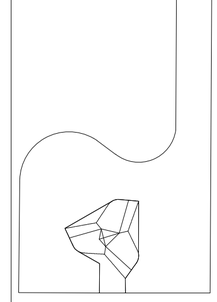
A-258, SOUTH CITY -1
GURGAON-122001



NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)
3. The sizes and location of the columns is marked from the archival drawings and specifications received from Panjab University

LEGEND		AREA (SQM)
GF1.	Entrance Lobby	33.6 Sqm
GF2.	Exhibition	20 sqm
GF3.	Lecture Hall	83.6 Sqm
GF4.	Library	48 Sqm
GF5.	Seminar Room	44.27 Sqm
GF6.	Director's Room	13 Sqm
GF7.	Research Council	7.9 Sqm
GF8.	Store	11.5 Sqm
GF9.	Lavatory/Toilets	14.5 Sqm
T1.	Terrace 1	193 Sqm
T2.	Terrace 2	97.2 Sqm
T3.	Terrace 3	95.3 Sqm



KEY PLAN

DRAWING SCALE: 1:100

GRAPHIC SCALE:

0M 2M 4M

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	27.09.2016

DRAWING NAME:
STRUCTURAL LAYOUT PLAN

DRAWING NUMBER: GB/MD/P-06

SERIES: DOCUMENTATION DRAWINGS

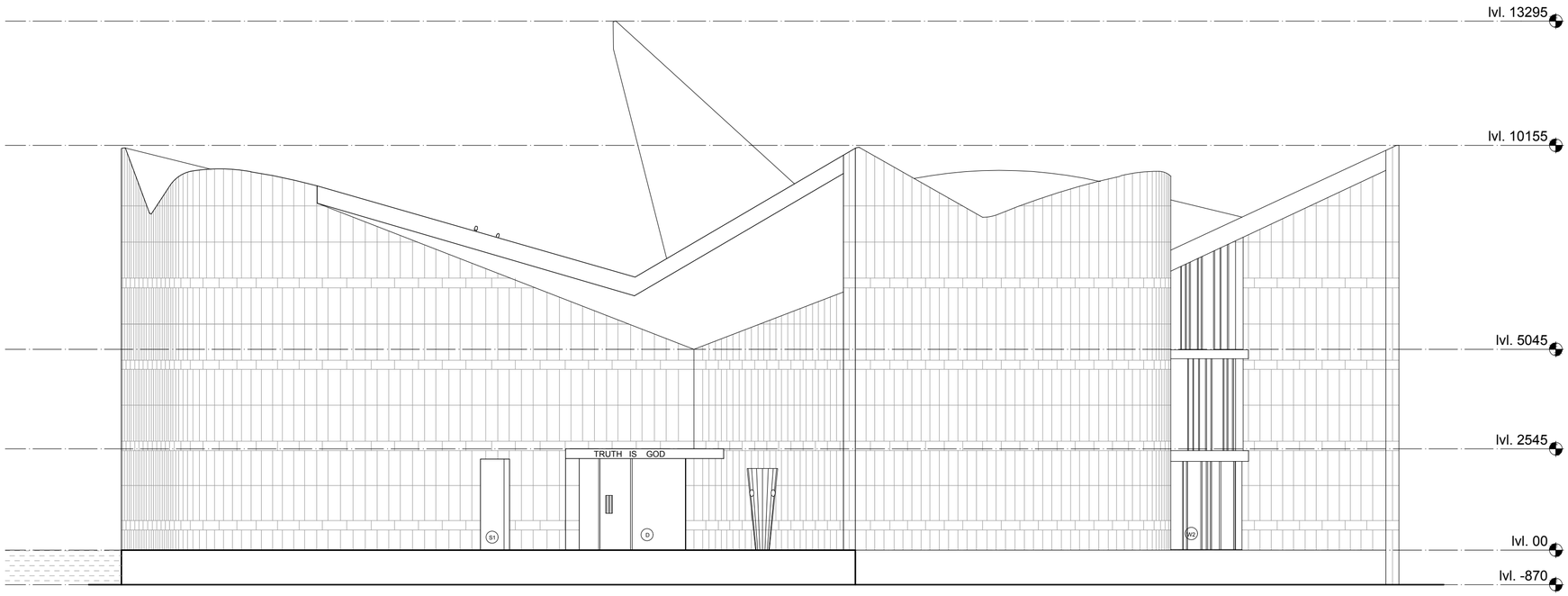
PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

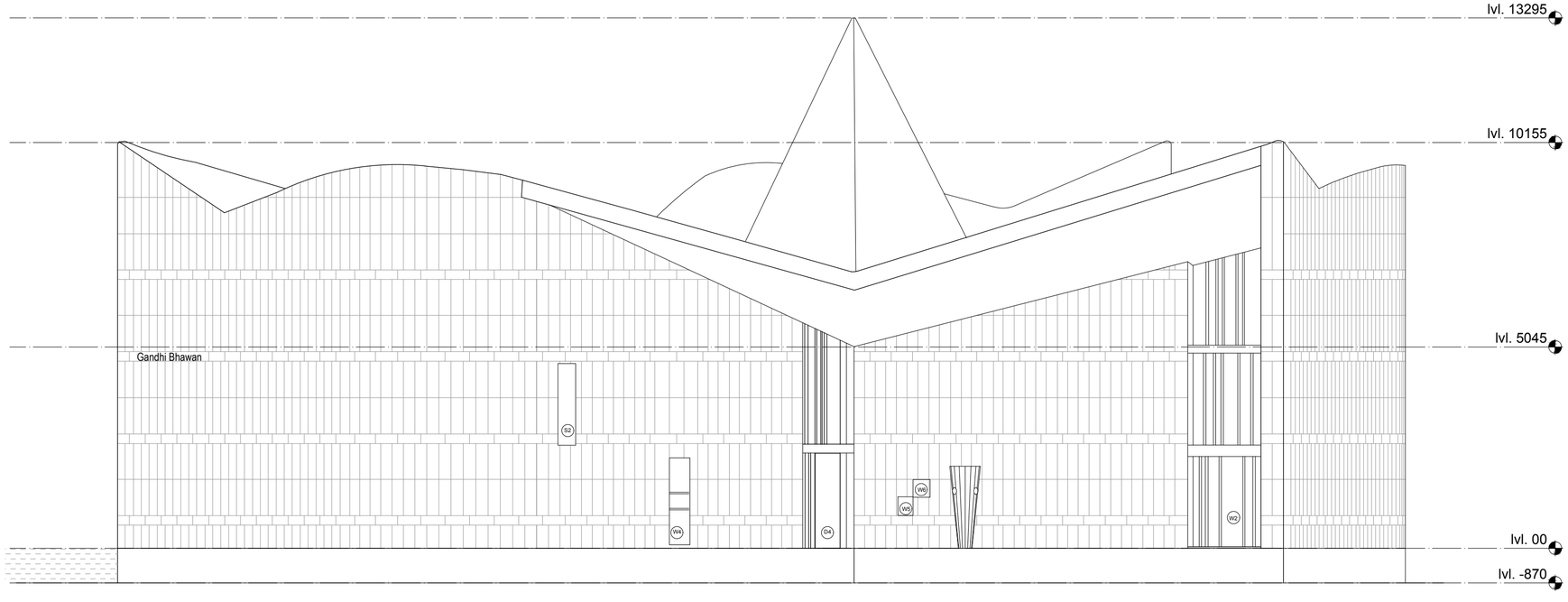
CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



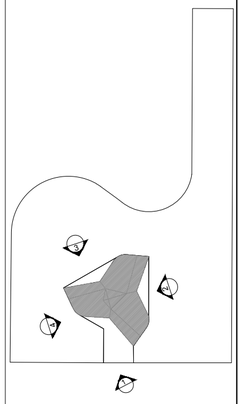
ELEVATION 1



ELEVATION 2

NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)



KEY PLAN

DRAWING SCALE: 1:100

GRAPHIC SCALE:

0M 2M 4M

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	27.09.2016

DRAWING NAME:
ELEVATIONS

DRAWING NUMBER: GB/MD/E-01

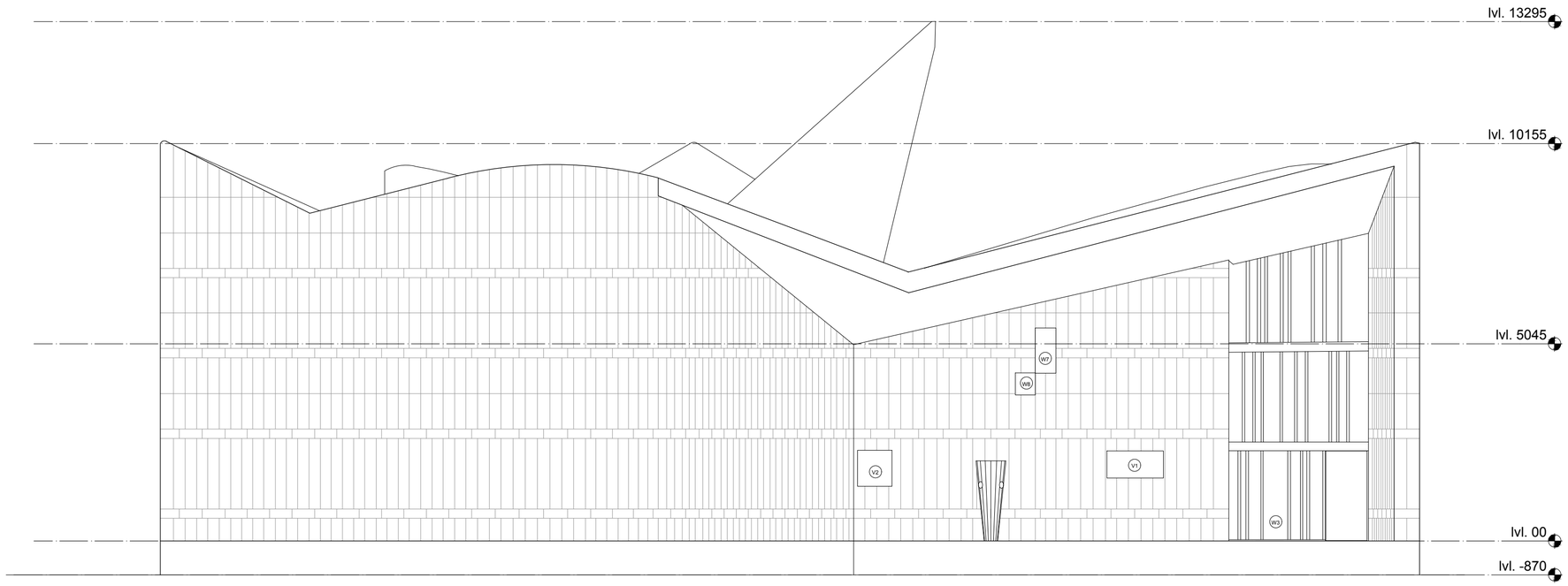
SERIES: DOCUMENTATION DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

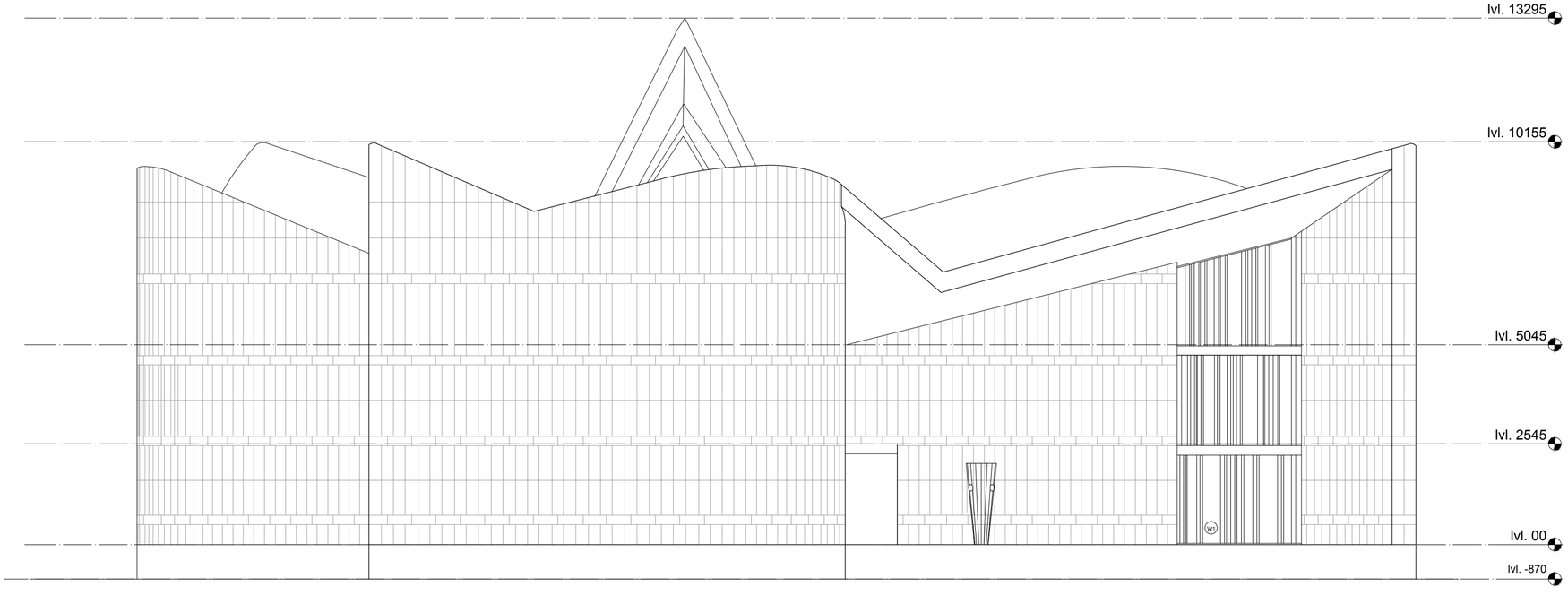
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



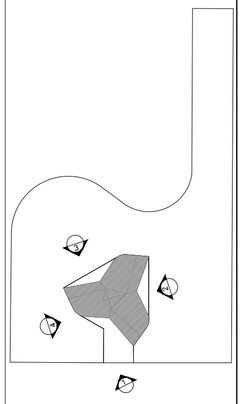
ELEVATION 3



ELEVATION 4

NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)



KEY PLAN

DRAWING SCALE: 1:100

GRAPHIC SCALE:

0M 2M 4M

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	27.09.2016

DRAWING NAME:
ELEVATIONS

DRAWING NUMBER: GB/MD/E-02

SERIES: DOCUMENTATION DRAWINGS

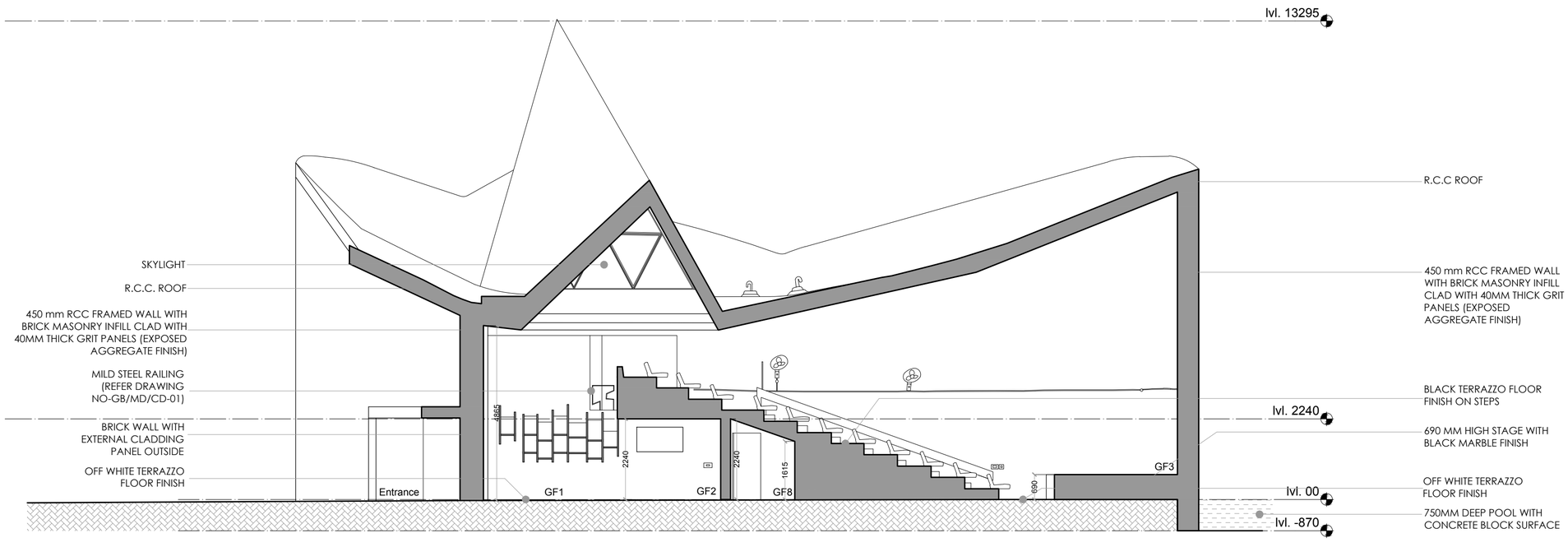
PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

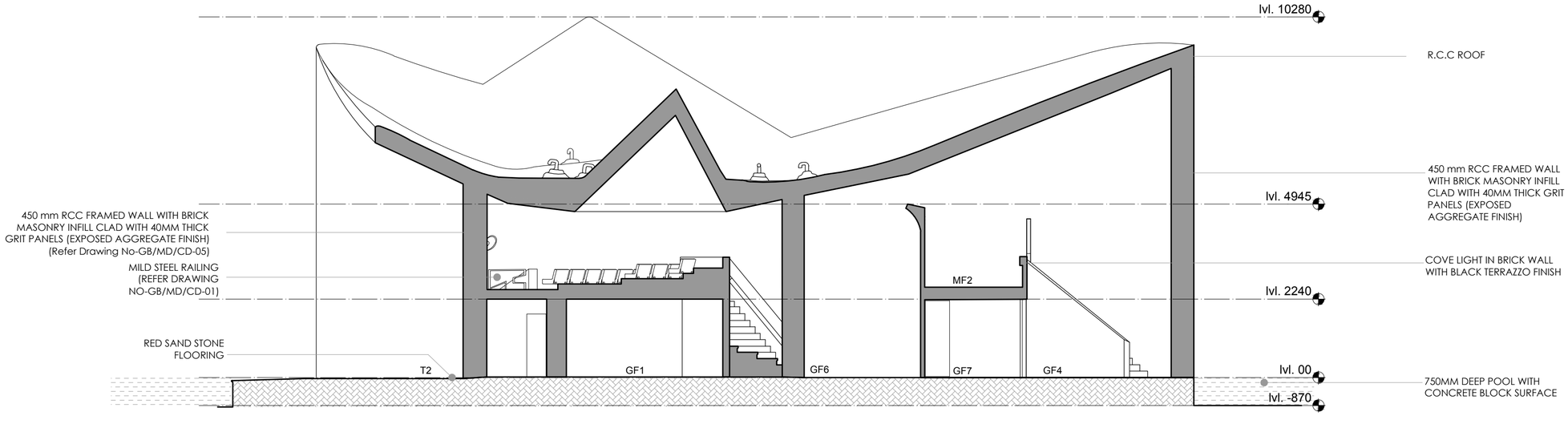
CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



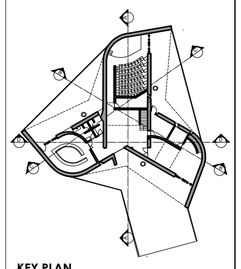
SECTION AA'



SECTION BB'

NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)



KEY PLAN

DRAWING SCALE: 1:100

GRAPHIC SCALE:

0M 2M 4M

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	27.09.2016

DRAWING NAME:
SECTIONS

DRAWING NUMBER: GB/MD/S-01

SERIES: DOCUMENTATION DRAWINGS

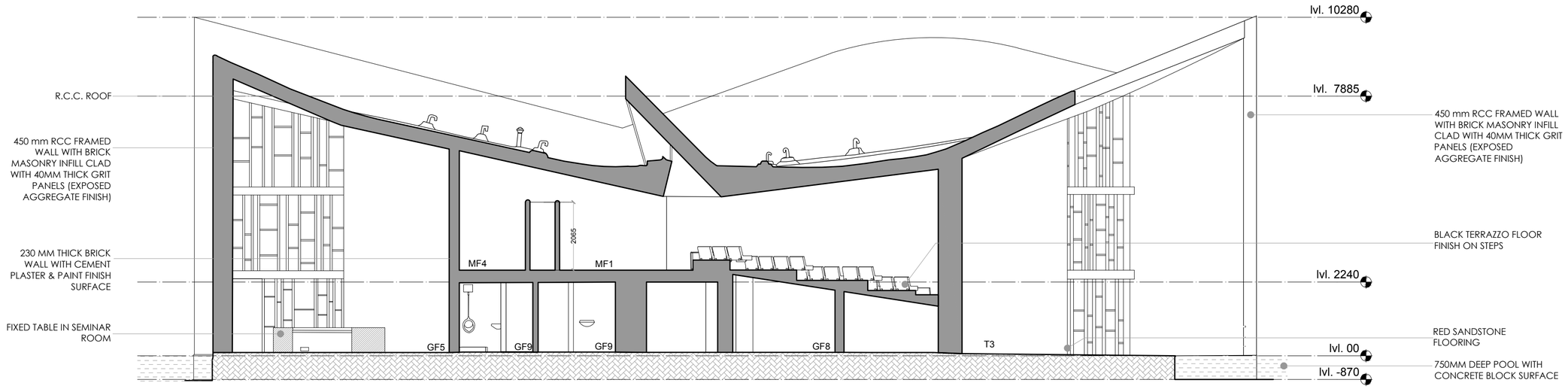
PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

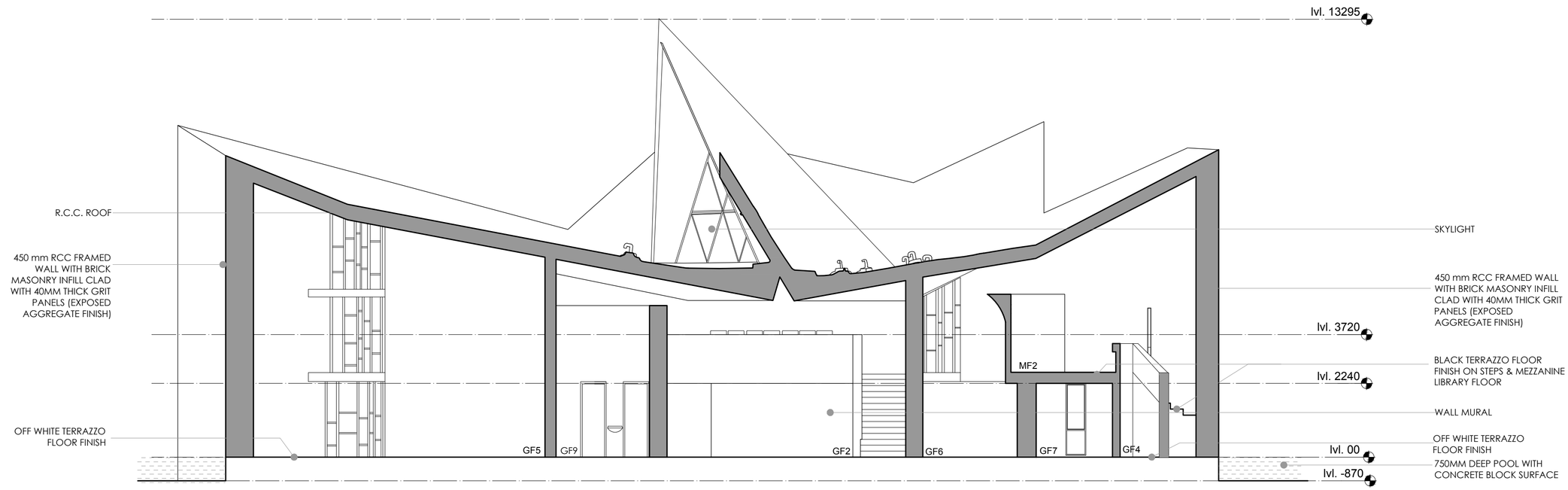
CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



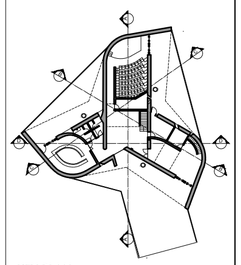
SECTION CC'



SECTION DD'

NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)



KEY PLAN

DRAWING SCALE: 1:100

GRAPHIC SCALE:

0M 2M 4M

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	27.09.2016

DRAWING NAME: SECTIONS

DRAWING NUMBER: GB/MD/S-01

SERIES: DOCUMENTATION DRAWINGS

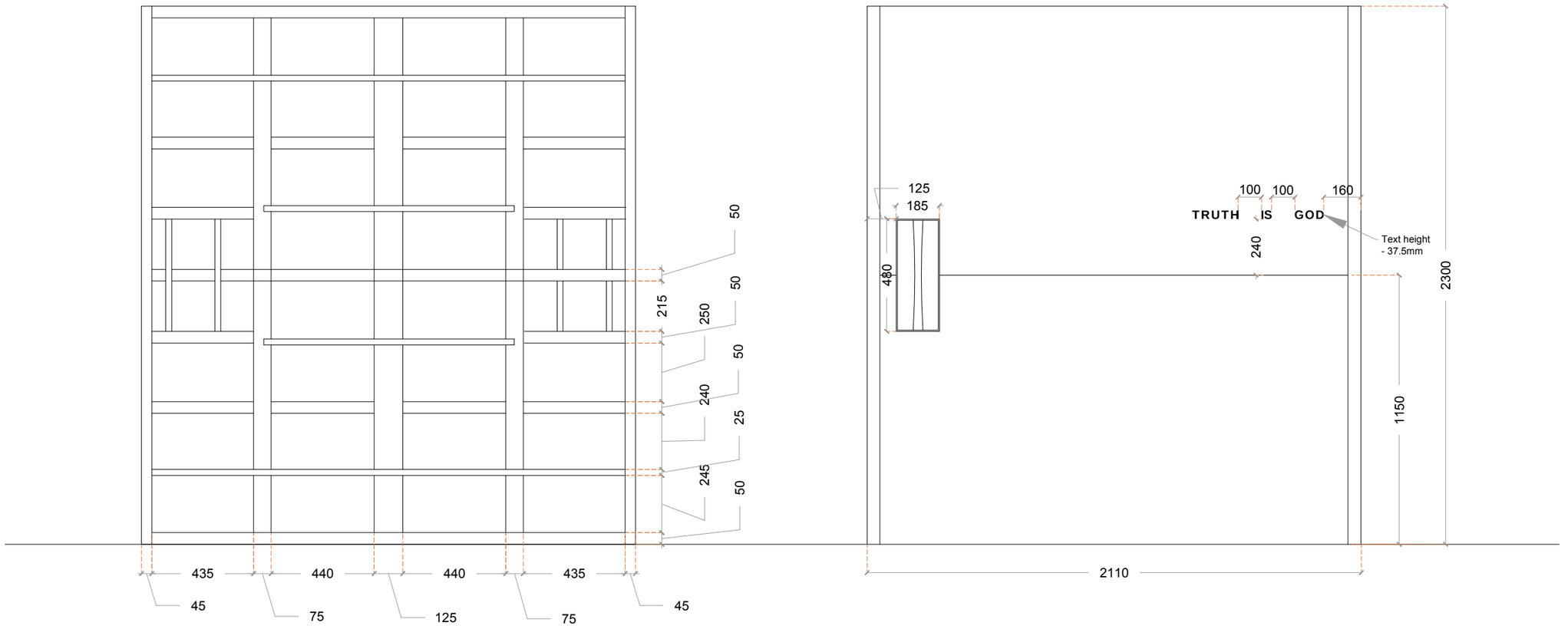
PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:

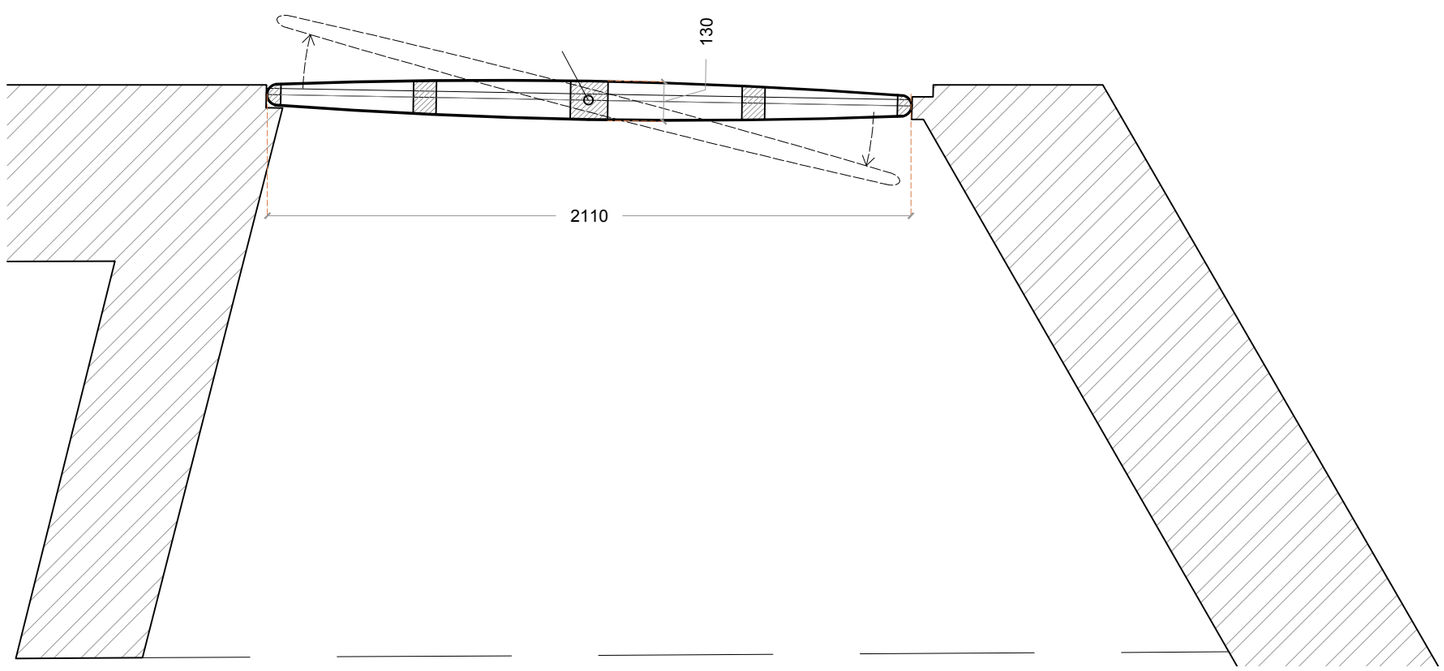
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



FRAME STRUCTURE

OUTER ELEVATION



NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)

KEY PLAN

DRAWING SCALE: 1:20

GRAPHIC SCALE:

0 50 100 250 500

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	07.11.2016

DRAWING NAME:
DOOR/WINDOW- D

DRAWING NUMBER: GB/MD/DW/01

SERIES: DOCUMENTATION DRAWINGS

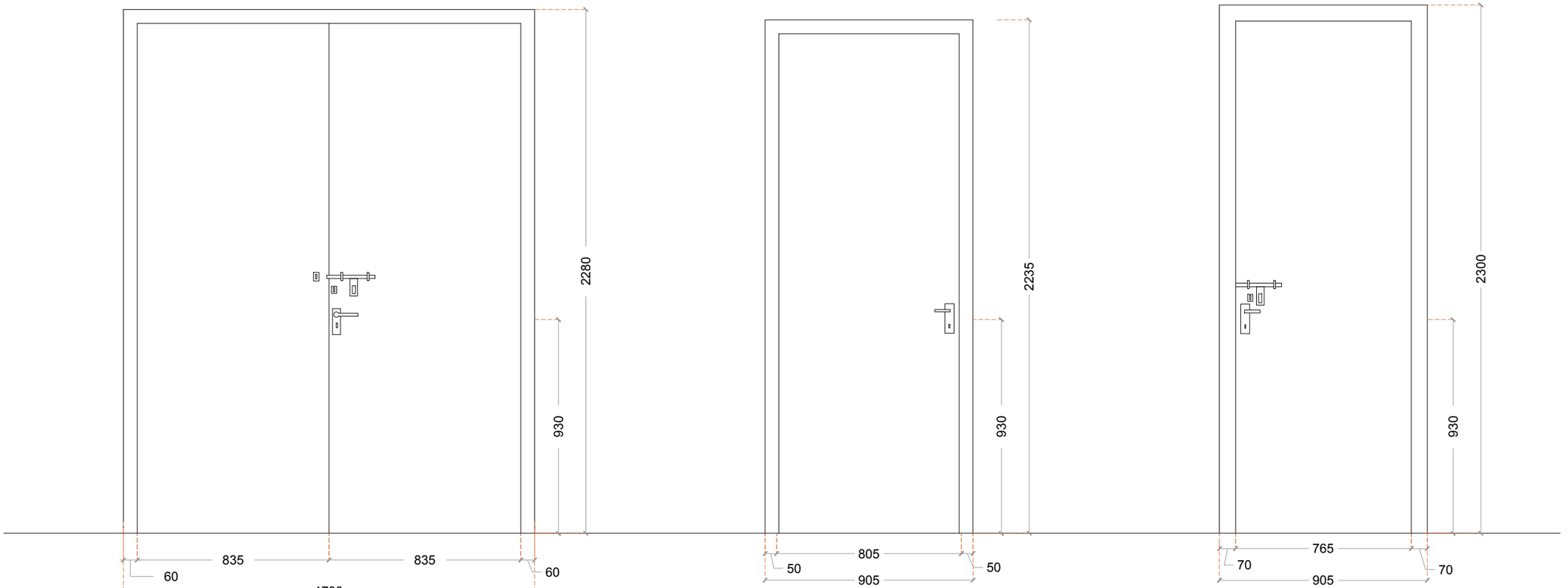
PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

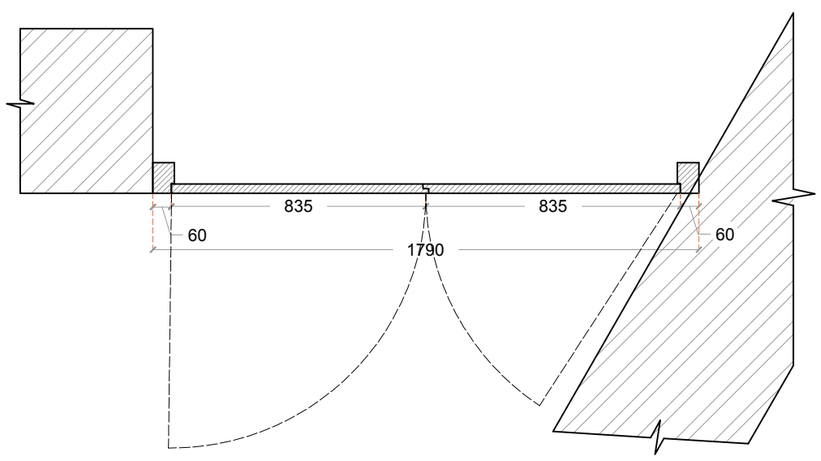
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:

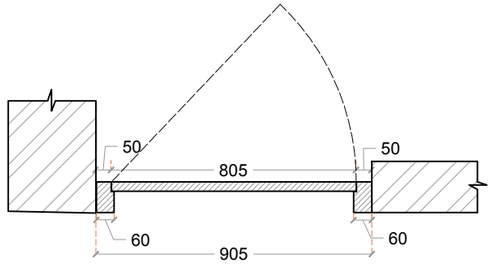
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001

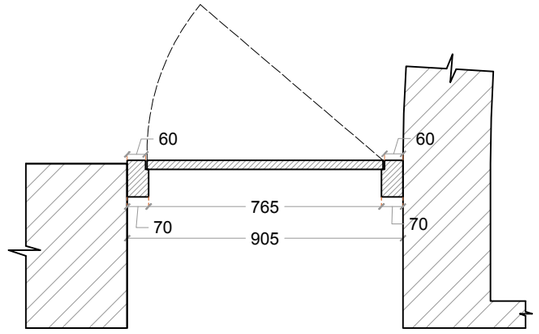




D1



D2



D3

NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)

KEY PLAN

DRAWING SCALE: 1:20

GRAPHIC SCALE:

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	07.11.2016

DRAWING NAME:
DOOR/WINDOW - D1, D2, D3

DRAWING NUMBER: GB/MD/DW/02

SERIES: DOCUMENTATION DRAWINGS

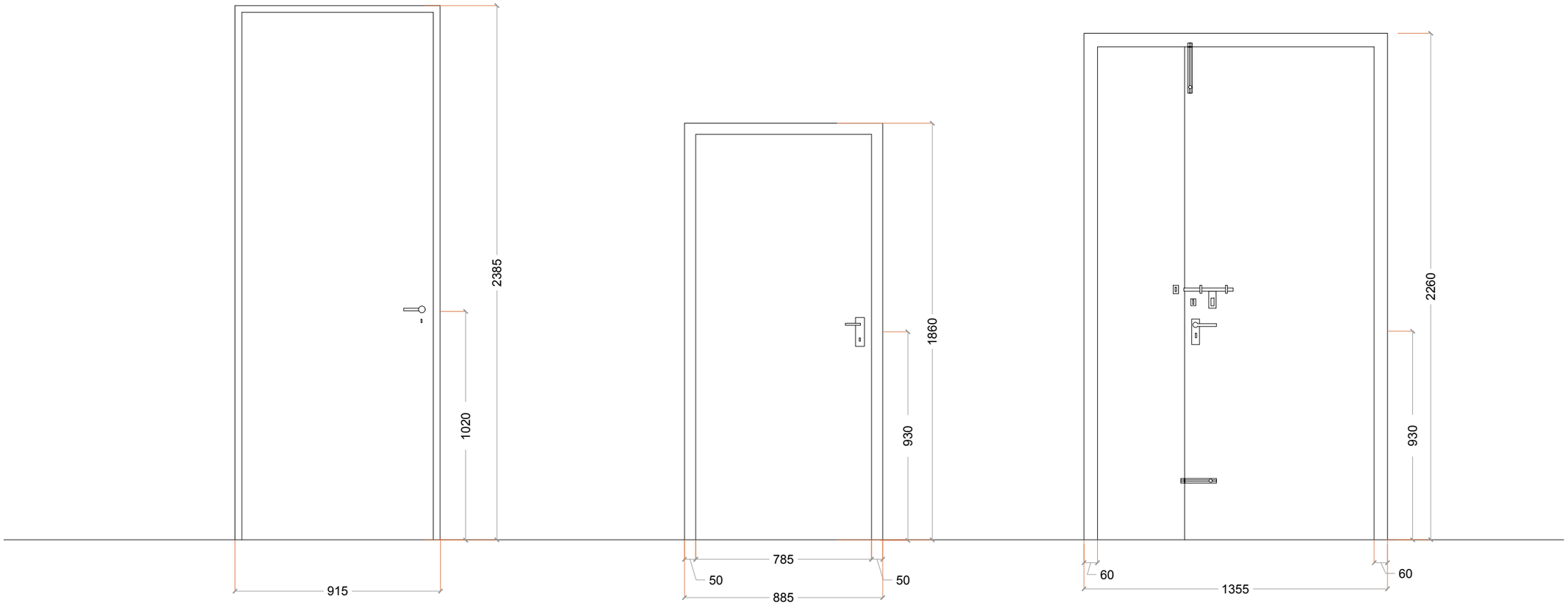
PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

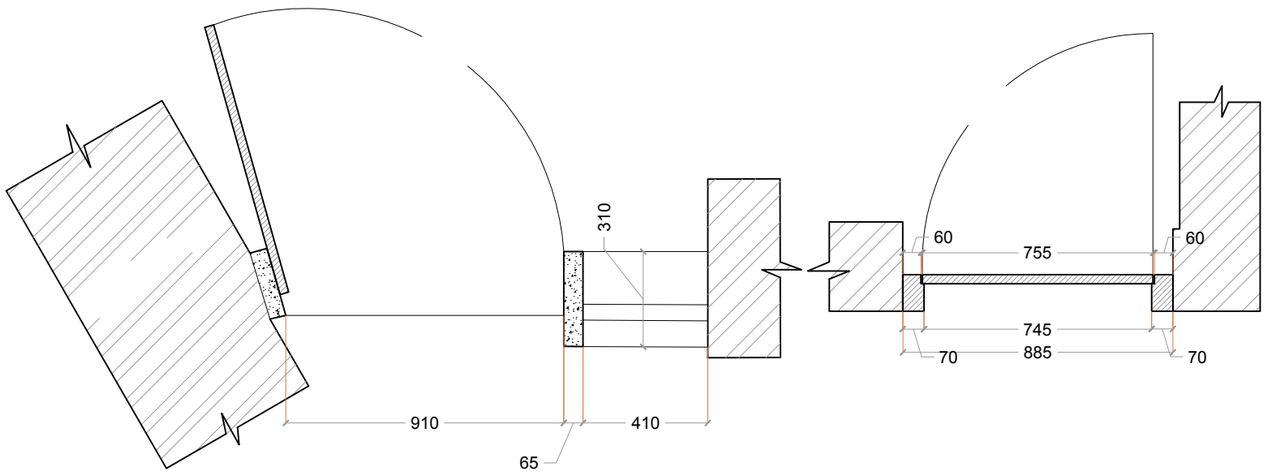
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

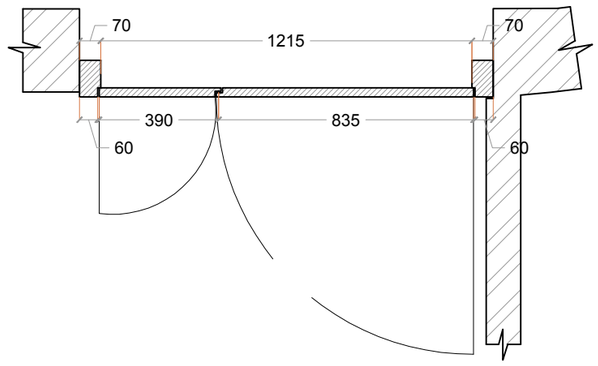
CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001







D4

D5

D6

NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)

KEY PLAN

DRAWING SCALE: 1:20

GRAPHIC SCALE:

0 50 100 250

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	07.11.2016

DRAWING NAME:
DOOR/WINDOW - D4, D5, D6

DRAWING NUMBER: GB/MD/DW/03

SERIES: DOCUMENTATION DRAWINGS

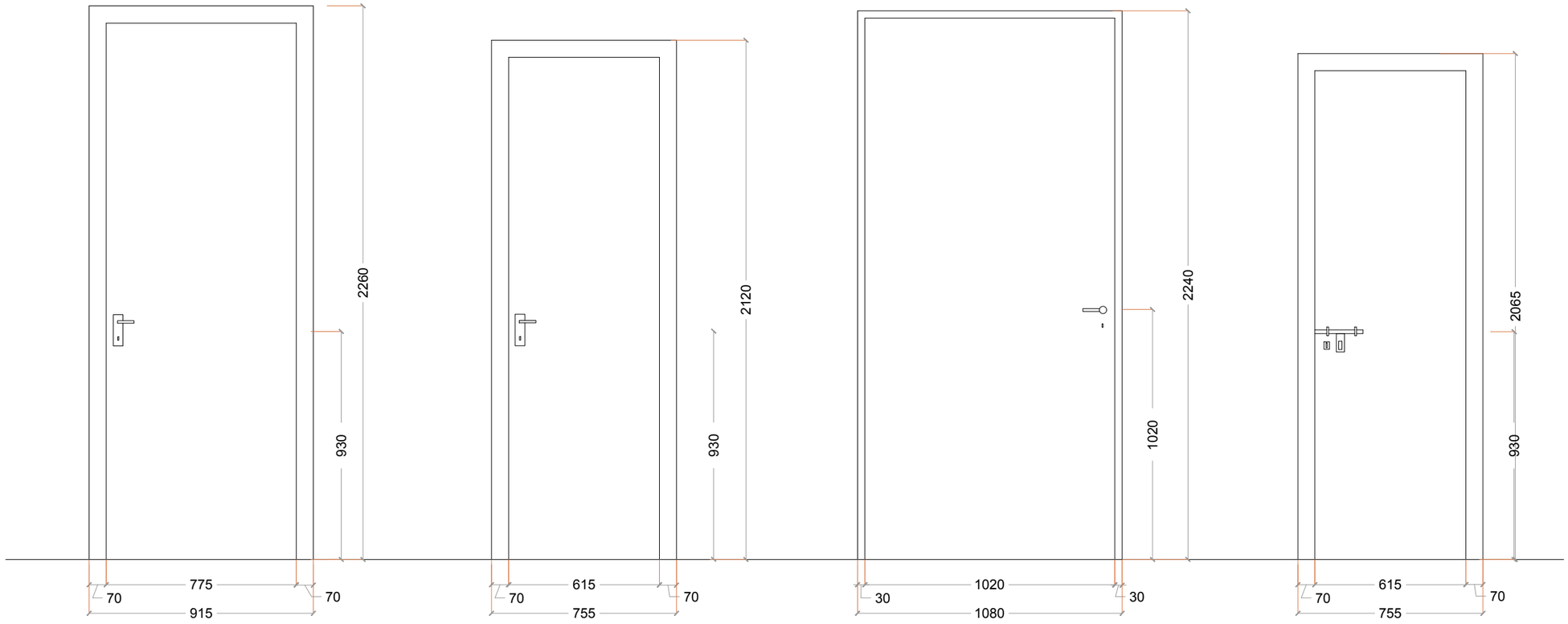
PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

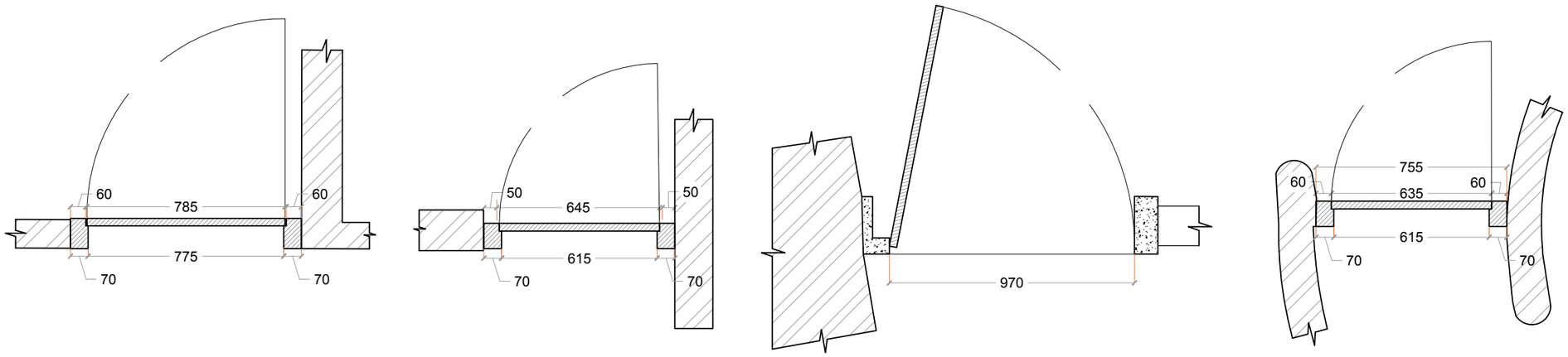
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001





D7 D8 D9 D10

NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)

KEY PLAN

DRAWING SCALE: 1:20

GRAPHIC SCALE:

0 50 100 250

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	07.11.2016

DRAWING NAME:
DOOR/WINDOW - D7, D8, D9, D10

DRAWING NUMBER: GB/MD/DW/04

SERIES: DOCUMENTATION DRAWINGS

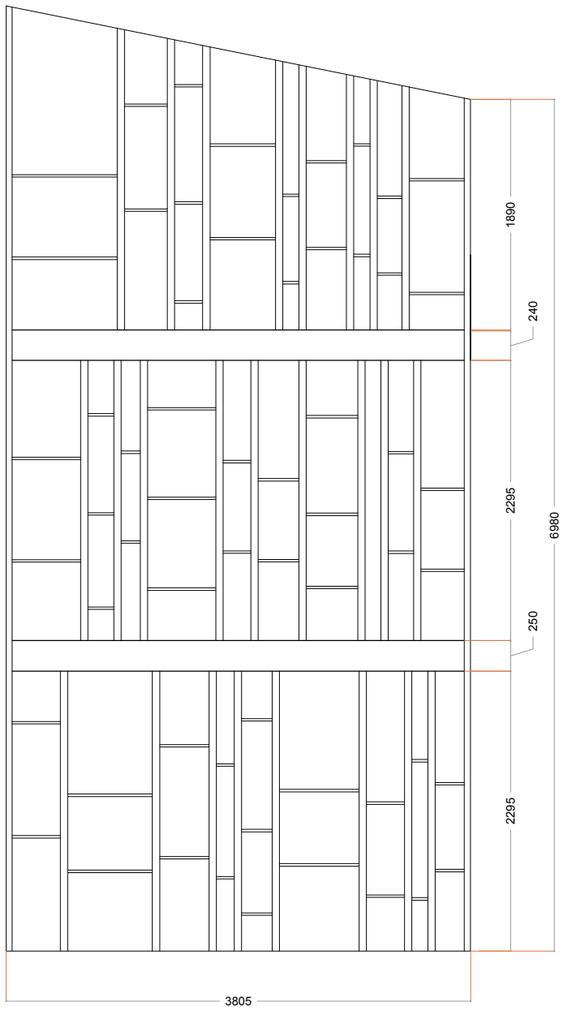
PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

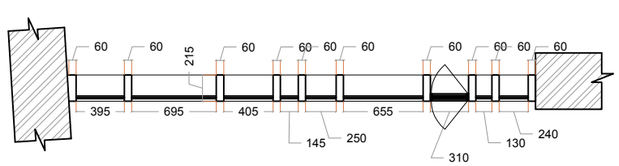
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:

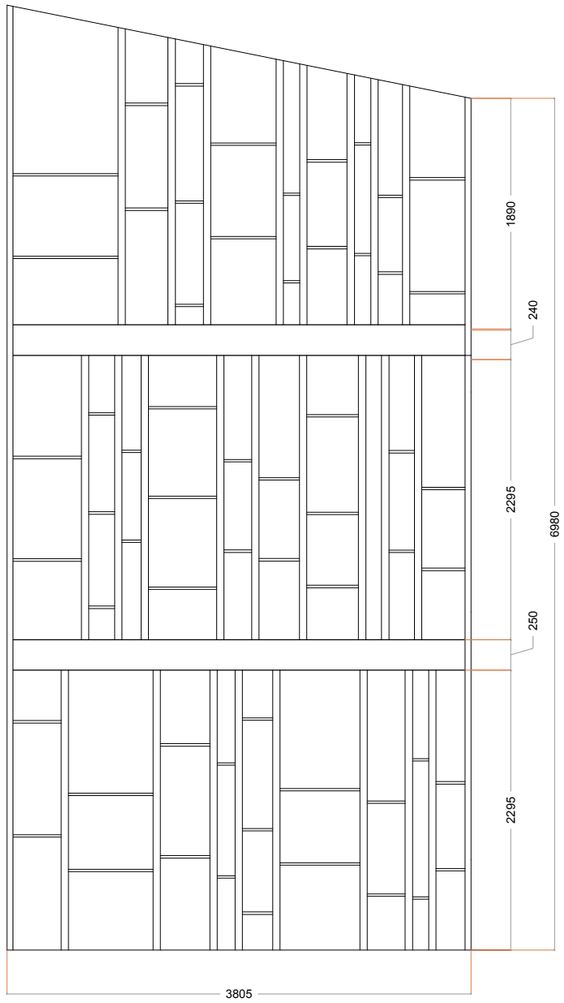
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

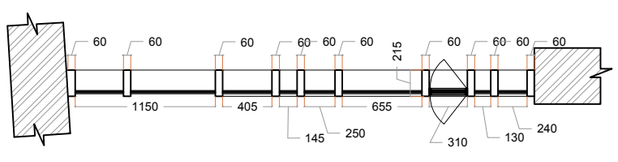
A-258, SOUTH CITY -1
GURGAON-122001



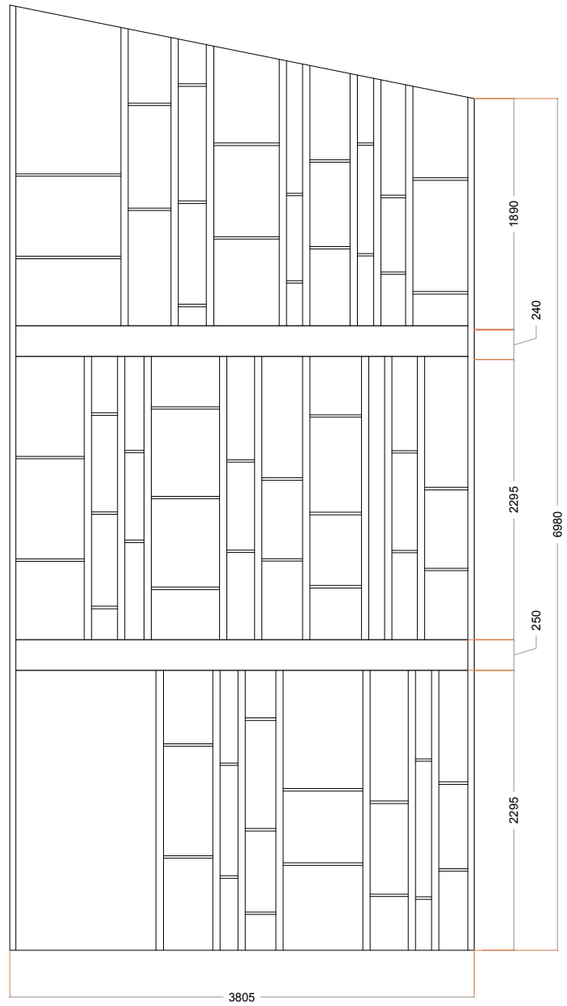


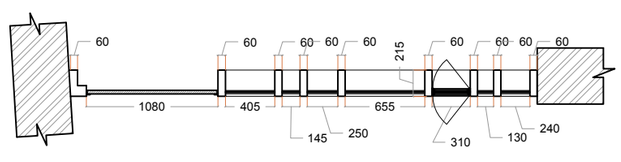
W1





W2





W3

NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)

KEY PLAN

DRAWING SCALE: 1:50

GRAPHIC SCALE:

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	07.11.2016

DRAWING NAME:
DOOR/WINDOW - W1, W2, W3

DRAWING NUMBER: GB/MD/DW/05

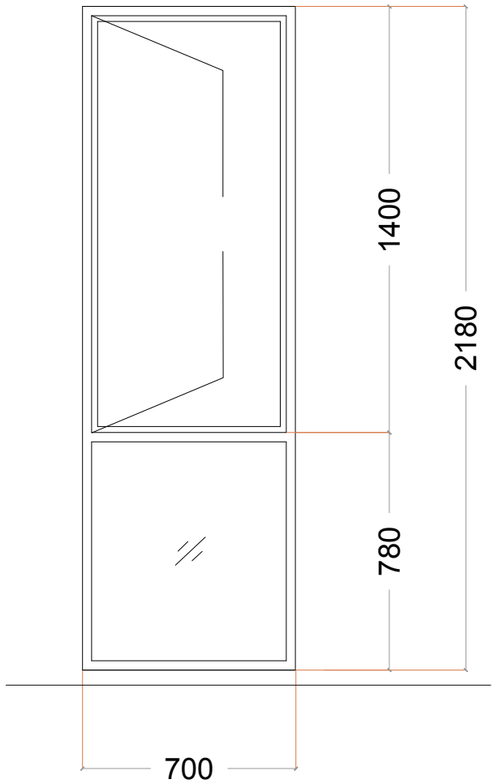
SERIES: DOCUMENTATION DRAWINGS

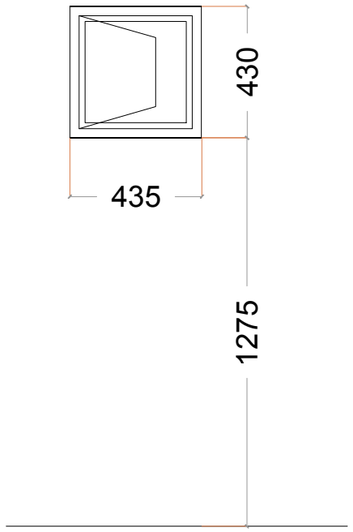
PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

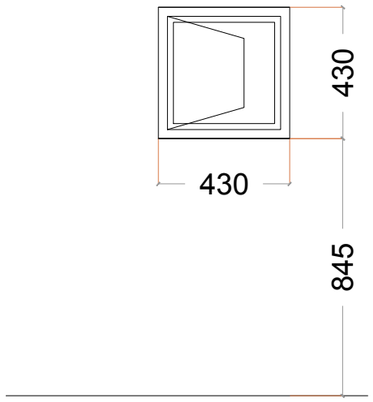
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

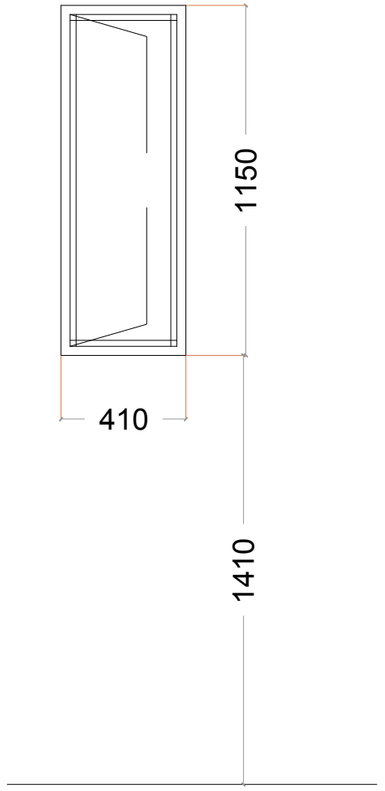
CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

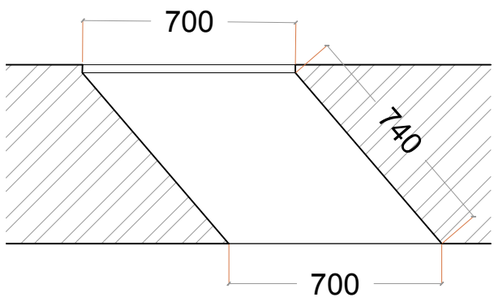
A-258, SOUTH CITY -1
GURGAON-122001



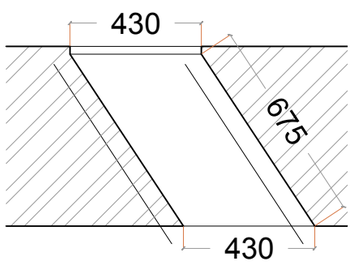




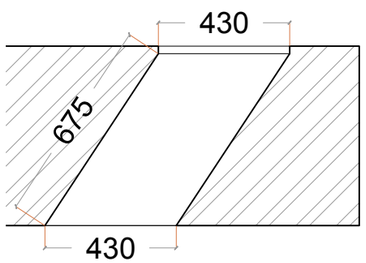




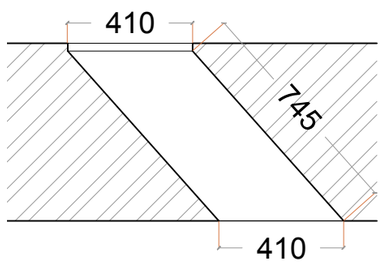
W4



W5



W6



W7

NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)

KEY PLAN

DRAWING SCALE: 1:20

GRAPHIC SCALE:

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	07.11.2016

DRAWING NAME:
DOOR/WINDOW - W4, W5, W6, W7, W8

DRAWING NUMBER: GB/MD/DW/06

SERIES: DOCUMENTATION DRAWINGS

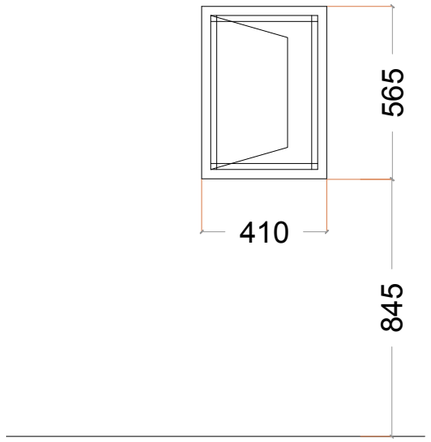
PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

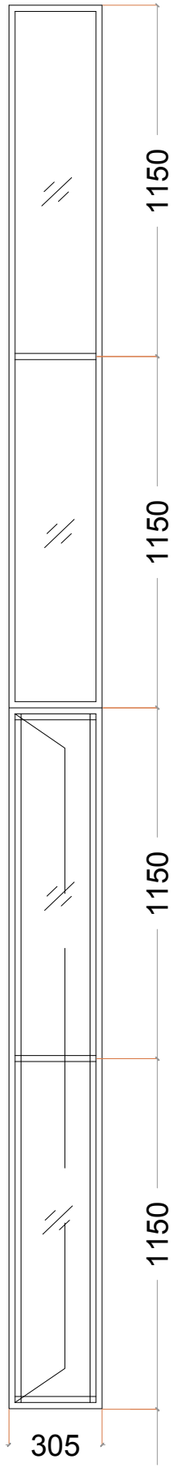
CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

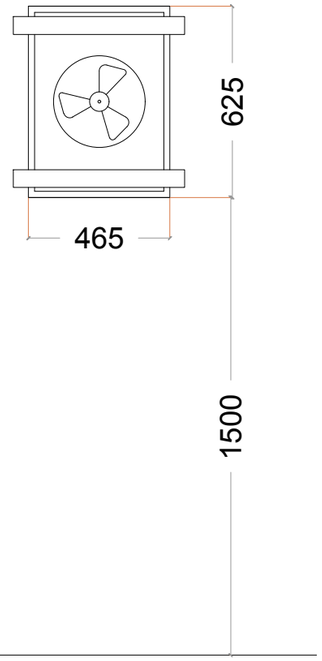
A-258, SOUTH CITY -1
GURGAON-122001



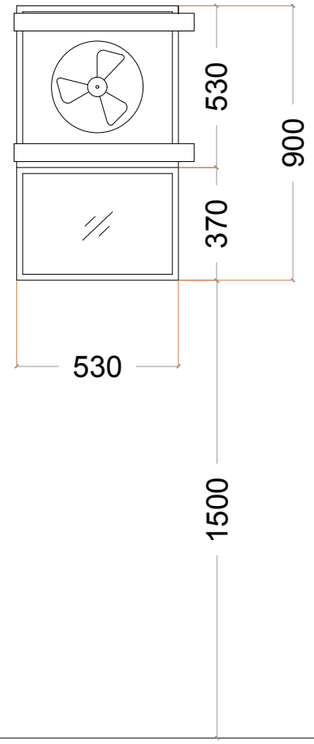
W8



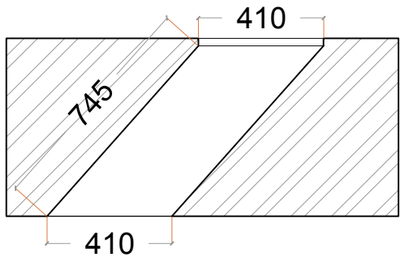
W9

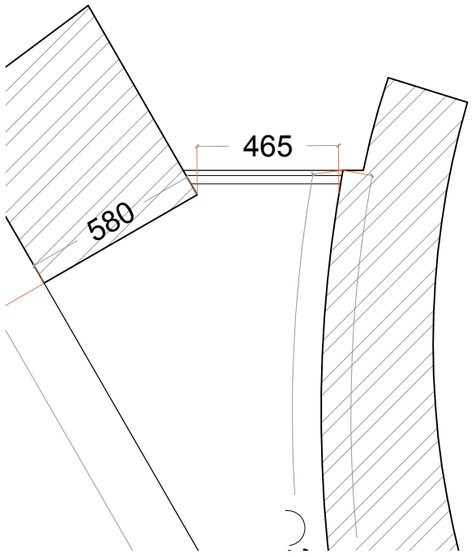


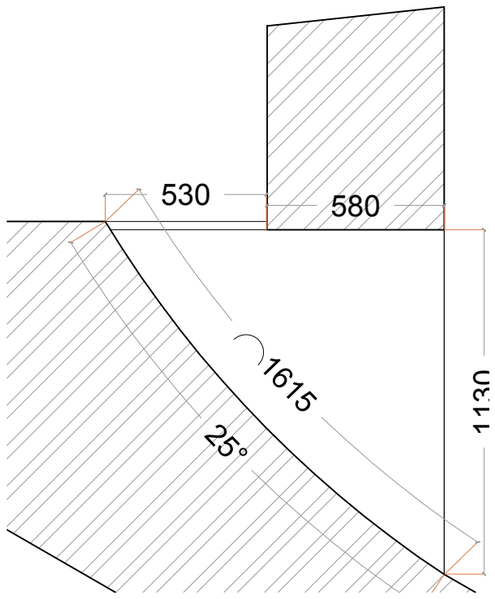
V1



V2







NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)

KEY PLAN

DRAWING SCALE: 1:20

GRAPHIC SCALE:

0 50 100 250 500

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	07.11.2016

DRAWING NAME:
DOOR/WINDOW - S1, S2, V1, V2, W9

DRAWING NUMBER: GB/MD/DW/07

SERIES: DOCUMENTATION DRAWINGS

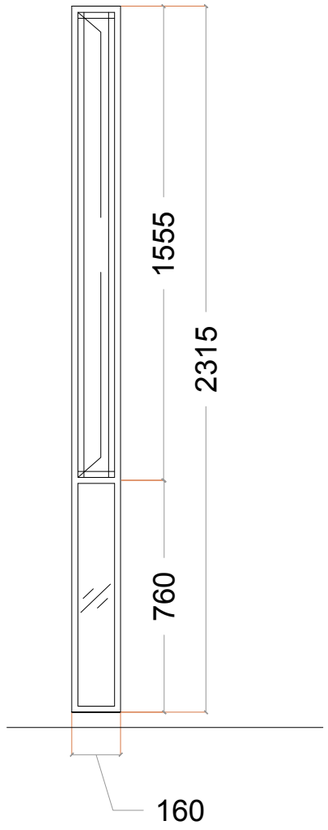
PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

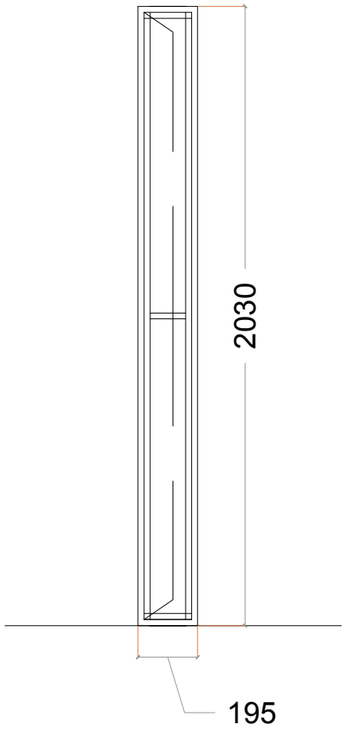
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

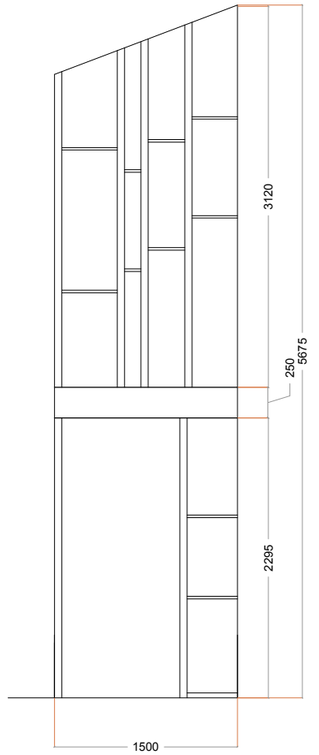
CONSULTANT:

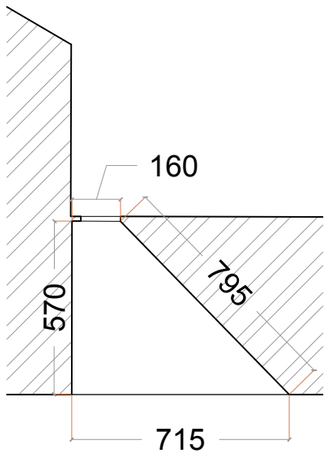
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001

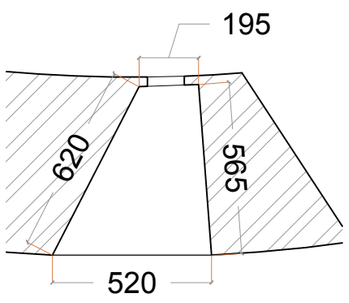




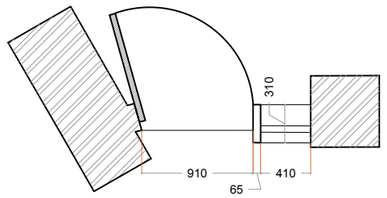




S1



S2



D4W

NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)

KEY PLAN

DRAWING SCALE: 1:50

GRAPHIC SCALE:

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	07.11.2016

DRAWING NAME:
DOOR/WINDOW - DW4

DRAWING NUMBER: GB/MD/DW/08

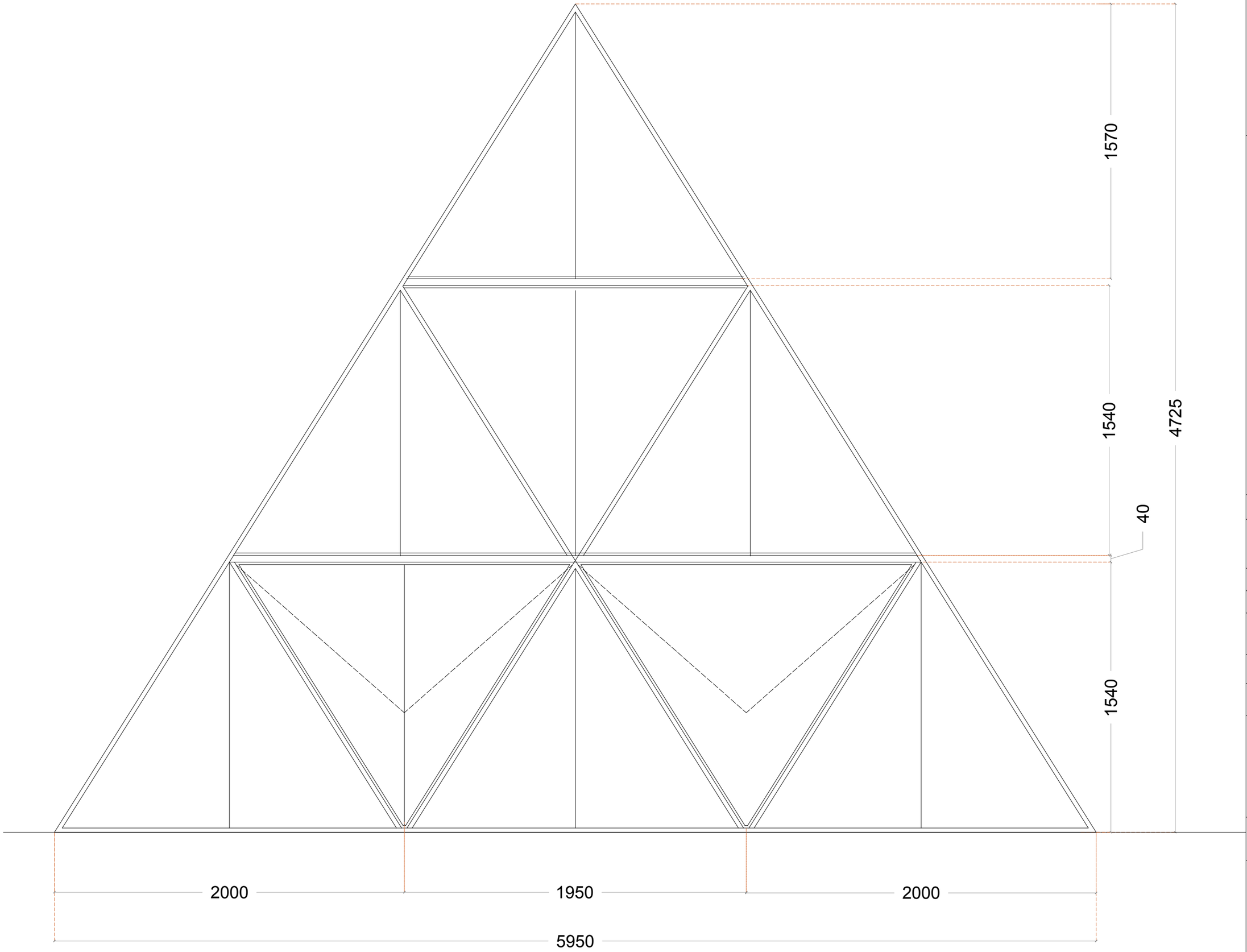
SERIES: DOCUMENTATION DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)

KEY PLAN

DRAWING SCALE: 1:20

GRAPHIC SCALE:

0 50 100 250 500

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	07.11.2016

DRAWING NAME:
DOOR/WINDOW - SKYLIGHT

DRAWING NUMBER: GB/MD/DW/09

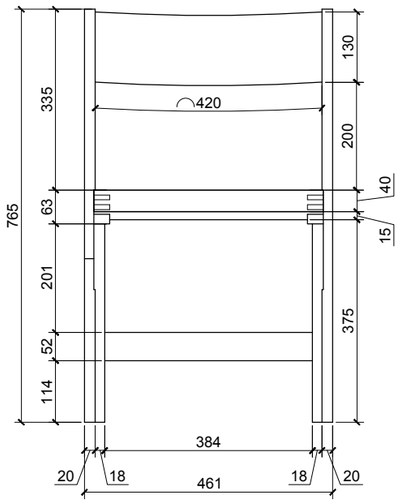
SERIES: DOCUMENTATION DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

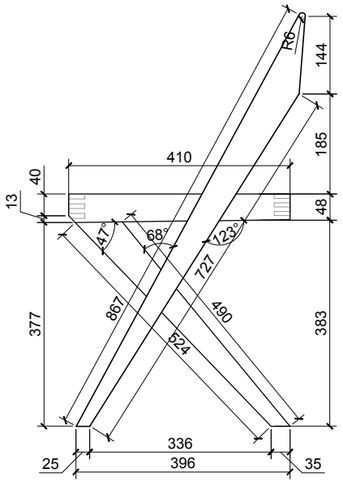
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

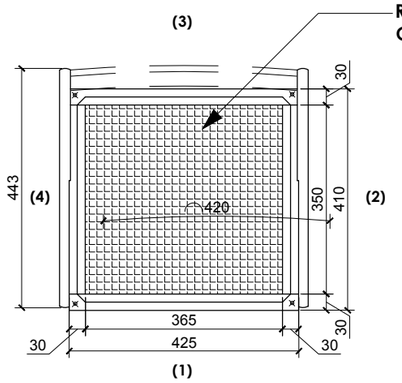
A-258, SOUTH CITY -1
GURGAON-122001



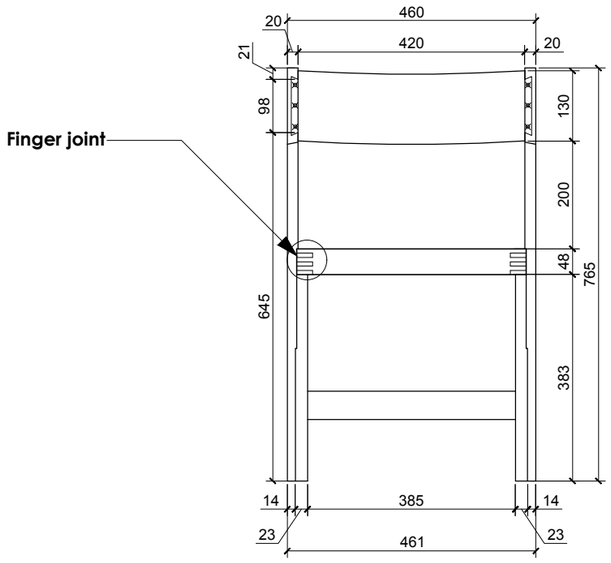
ELEVATION (1)



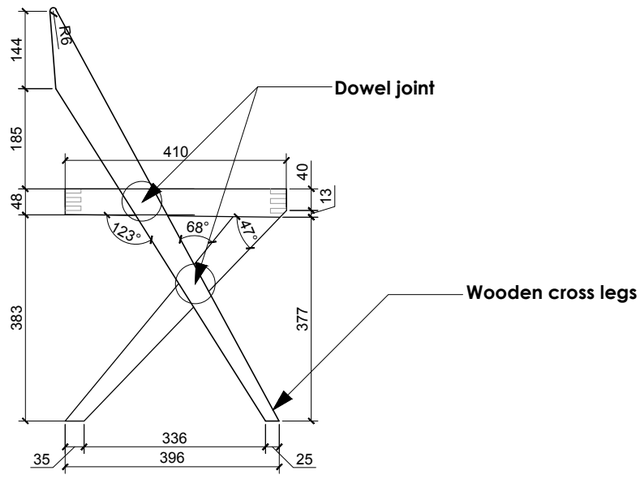
ELEVATION (2)



UPPER LEVEL PLAN



ELEVATION (3)



ELEVATION (4)

NOTES:

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2. All dimensions are in mm (millimeter)

KEY PLAN

DRAWING SCALE: 1:10

GRAPHIC SCALE:

0 25 50 100 250

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	07.11.2016

DRAWING NAME:
FURNITURE- CHAIR TYPE-1

DRAWING NUMBER: GB/MD/F2/01

SERIES: DOCUMENTATION DRAWINGS

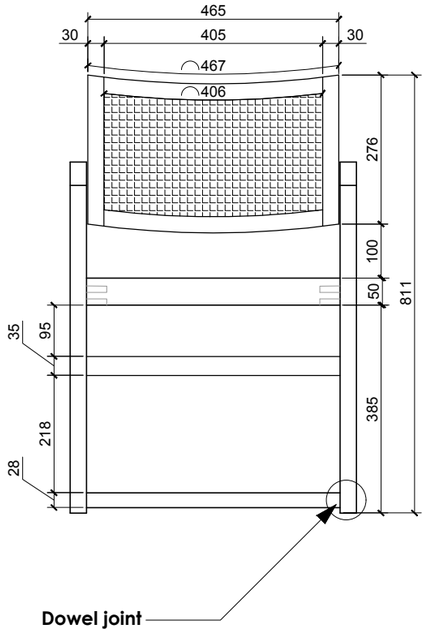
PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

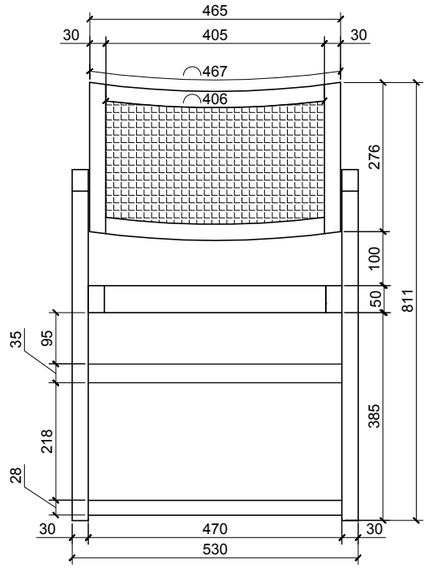
CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

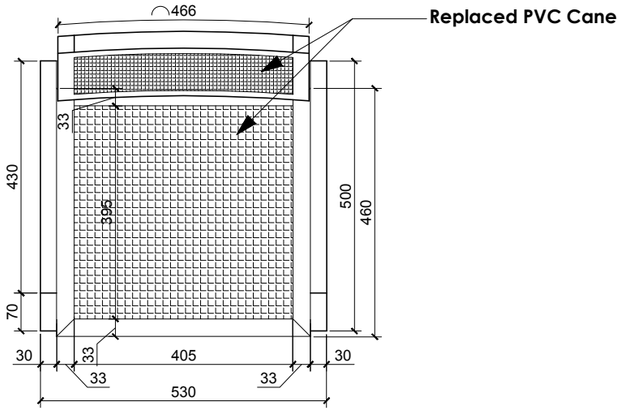
A-258, SOUTH CITY -1
GURGAON-122001



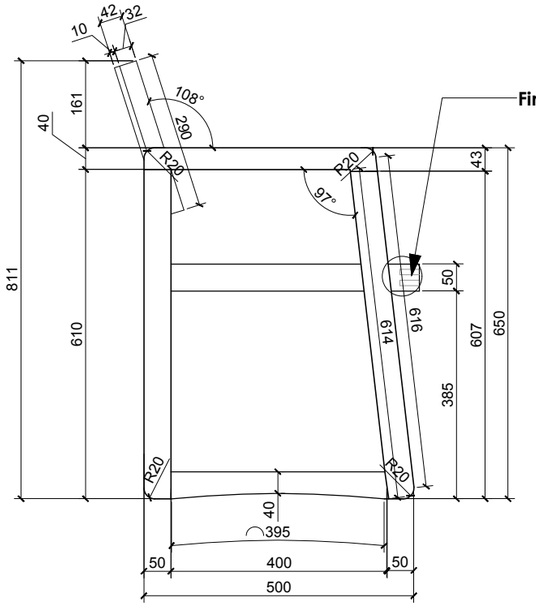
FRONT ELEVATION



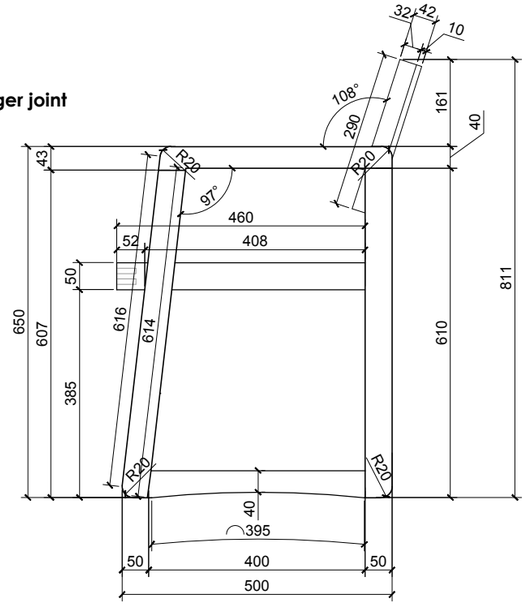
REAR ELEVATION



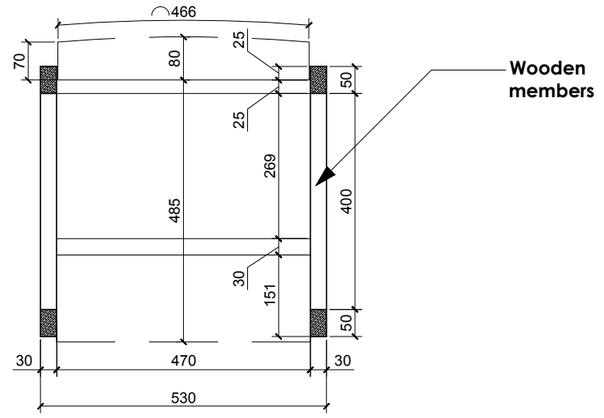
UPPER LEVEL PLAN



LEFT SIDE ELEVATION



RIGHT SIDE ELEVATION



LOWER LEVEL PLAN

NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)

KEY PLAN

DRAWING SCALE: 1:10

GRAPHIC SCALE:

0 25 50 100 250

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	07.11.2016

DRAWING NAME:
FURNITURE- CHAIR TYPE-2

DRAWING NUMBER: GB/MD/F3/01

SERIES: DOCUMENTATION DRAWINGS

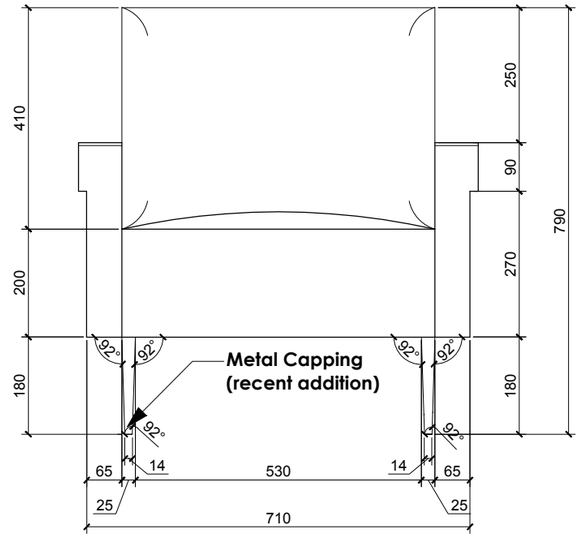
PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

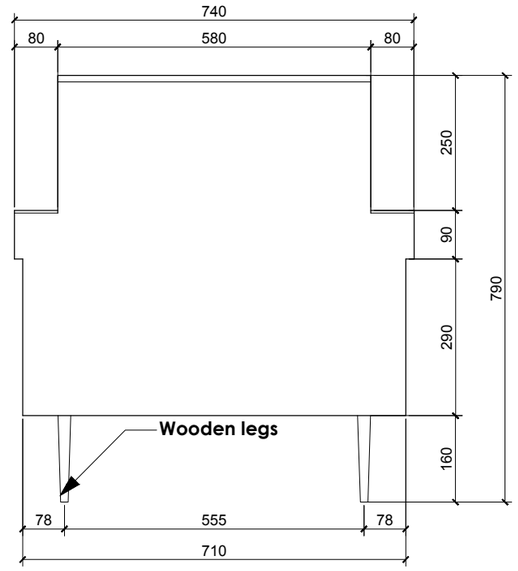
CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

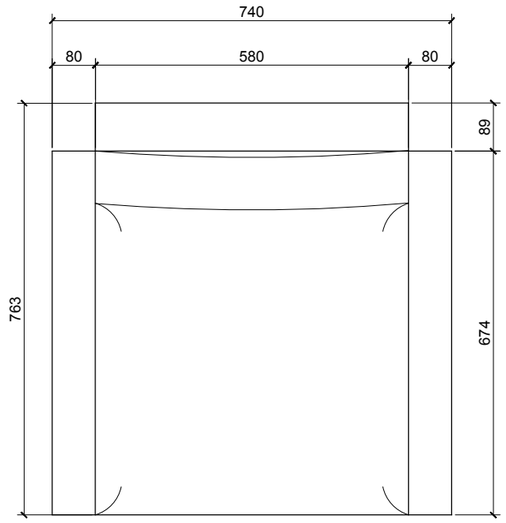
A-258, SOUTH CITY -1
GURGAON-122001



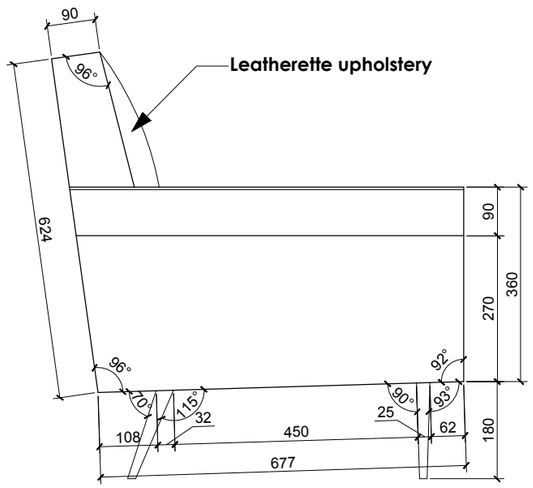
FRONT ELEVATION



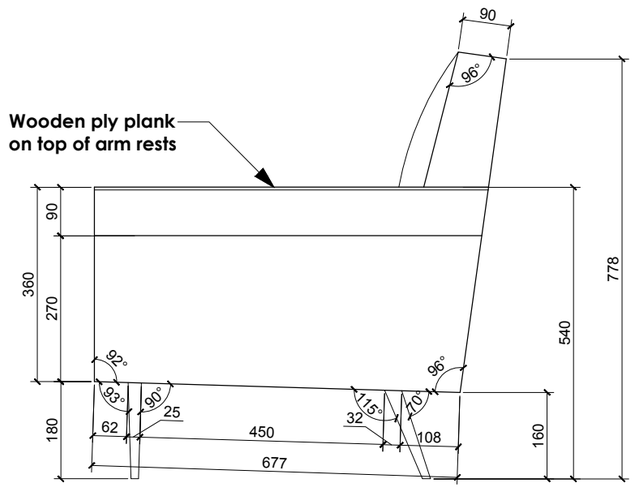
REAR ELEVATION



PLAN



LEFT SIDE ELEVATION



RIGHT SIDE ELEVATION

NOTES:

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2. All dimensions are in mm (millimeter)

KEY PLAN

DRAWING SCALE: 1:10

GRAPHIC SCALE:

0 25 50 100 250

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	07.11.2016

DRAWING NAME:
FURNITURE- SOFA-1

DRAWING NUMBER: GB/MD/F1/01

SERIES: DOCUMENTATION DRAWINGS

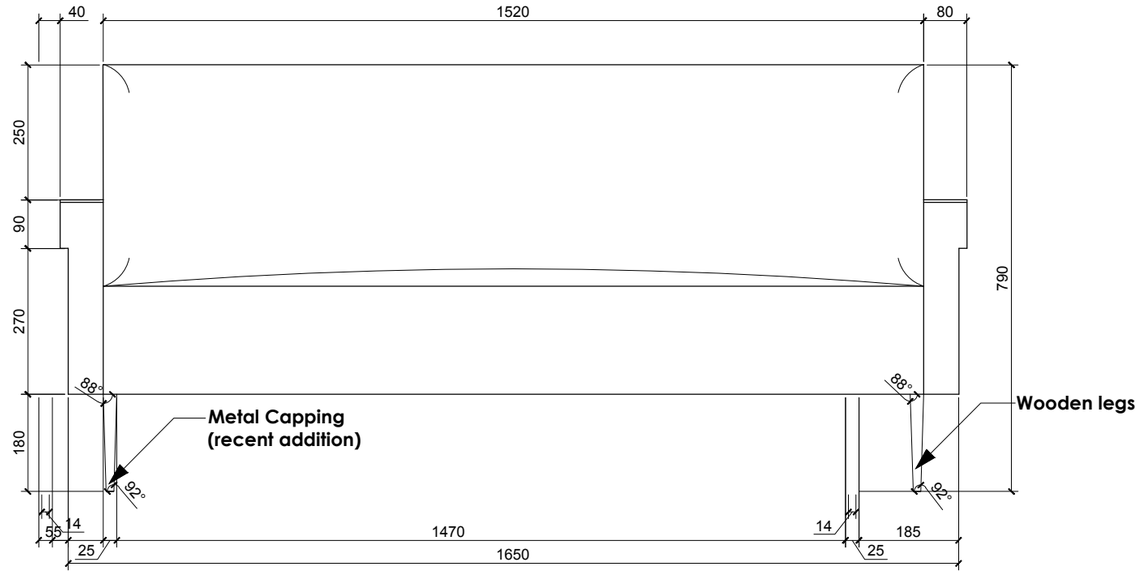
PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

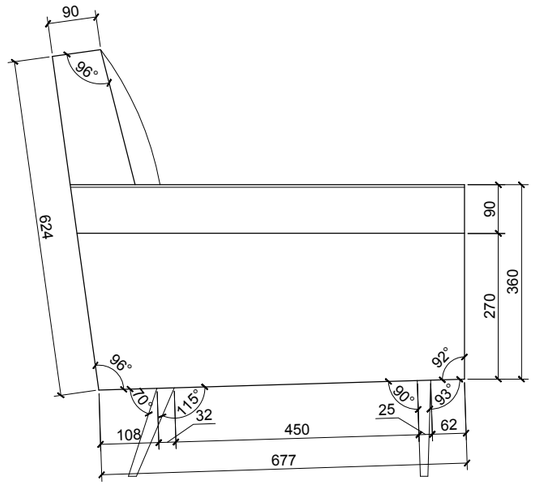
CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

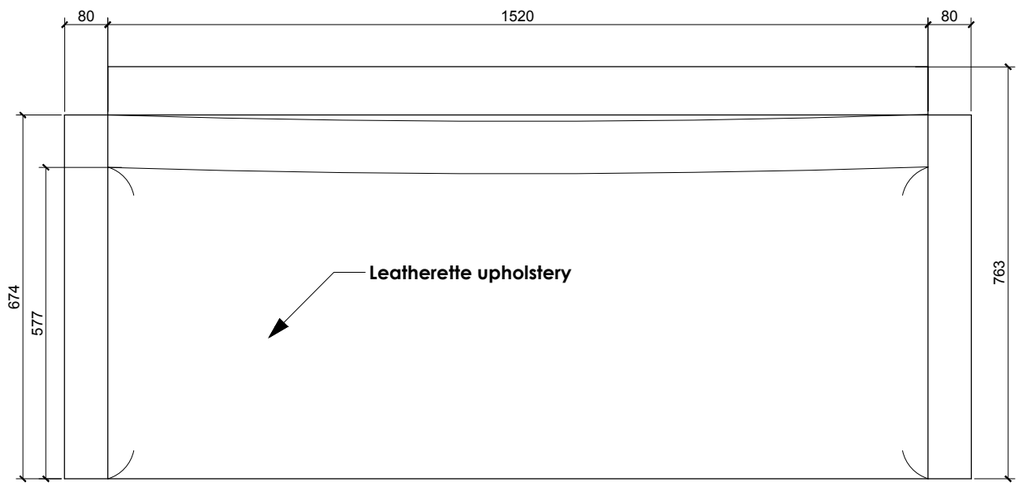
A-258, SOUTH CITY -1
GURGAON-122001



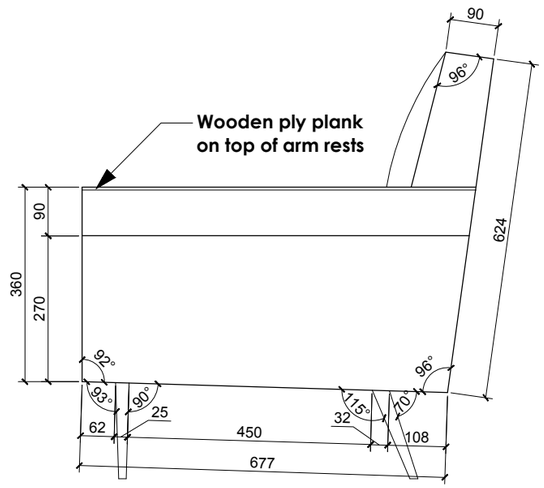
FRONT ELEVATION



LEFT SIDE ELEVATION



PLAN



RIGHT SIDE ELEVATION

NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)

KEY PLAN

DRAWING SCALE: 1:10

GRAPHIC SCALE:

0 25 50 100 250

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	07.11.2016

DRAWING NAME:
FURNITURE- SOFA-3

DRAWING NUMBER: GB/MD/F1/02

SERIES: DOCUMENTATION DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

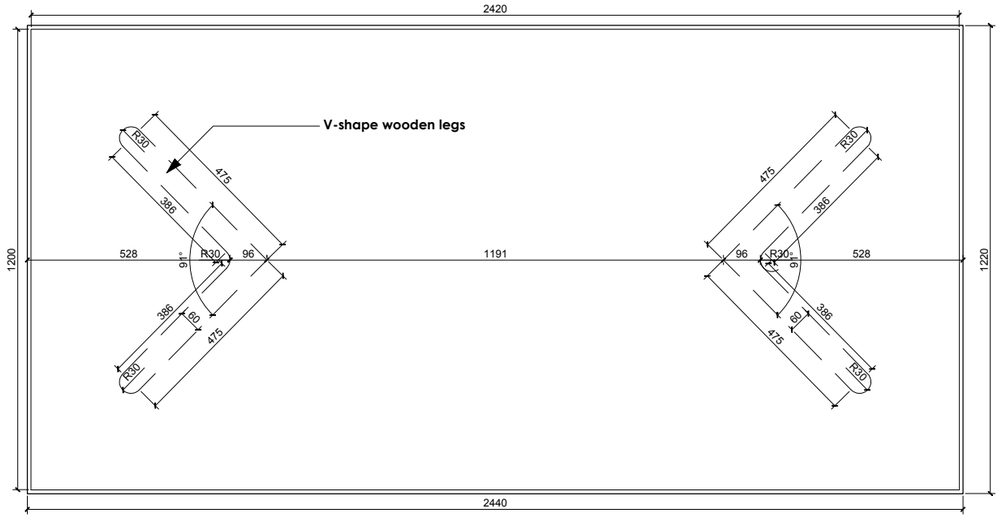
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:

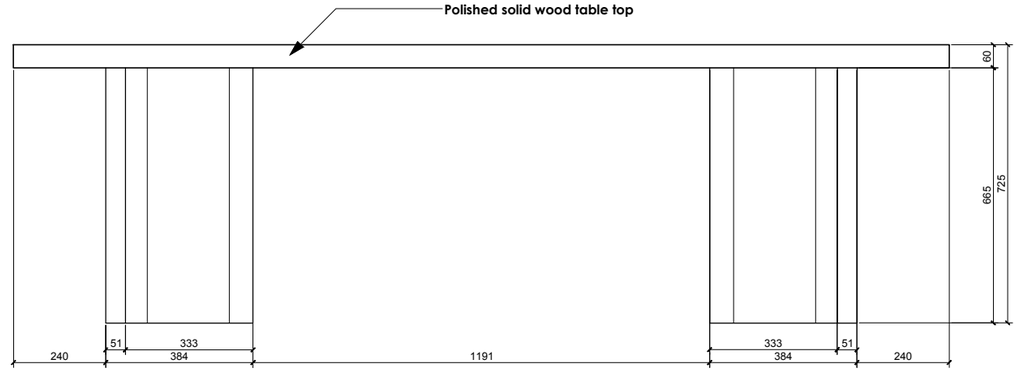
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001

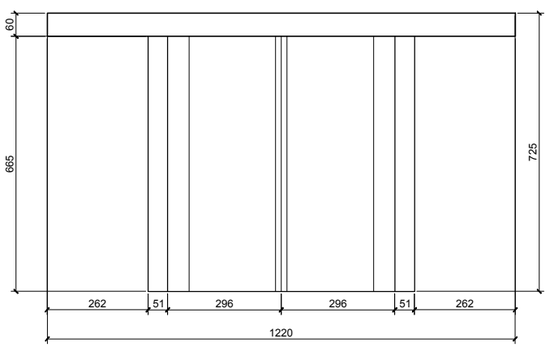
TABLE- G.S./11



PLAN

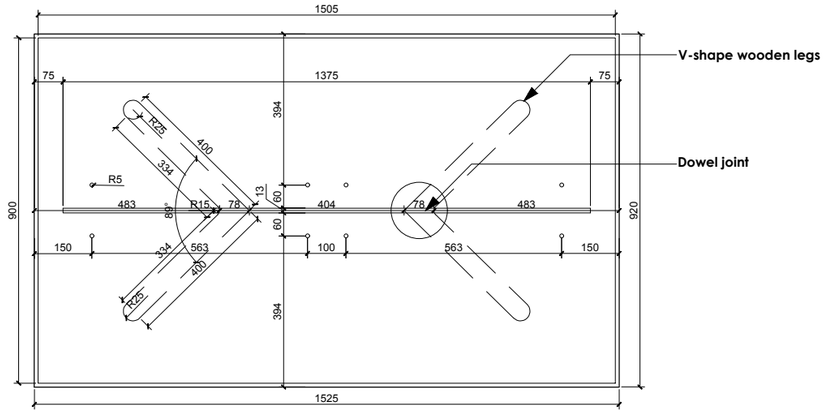


FRONT ELEVATION

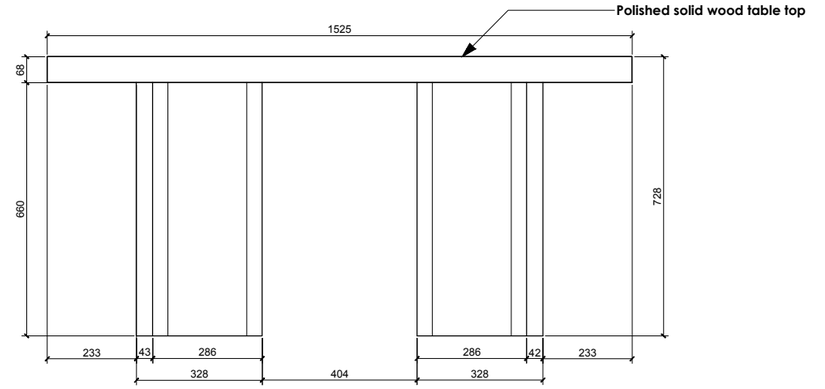


SIDE ELEVATION

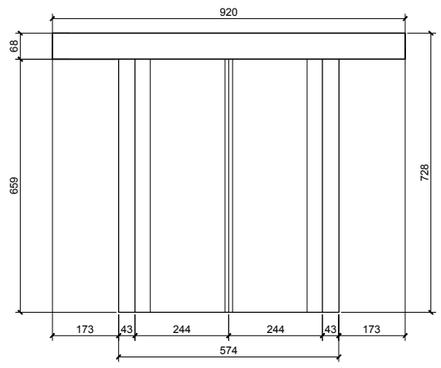
TABLE- G.S./13



PLAN



FRONT ELEVATION



SIDE ELEVATION

NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)

KEY PLAN

DRAWING SCALE: 1:10

GRAPHIC SCALE:

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	08.11.2016

DRAWING NAME:
FURNITURE- TABLE G.S./11 & G.S./13

DRAWING NUMBER: GB/MD/F4/01
GB/MD/F4/02

SERIES: DOCUMENTATION DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

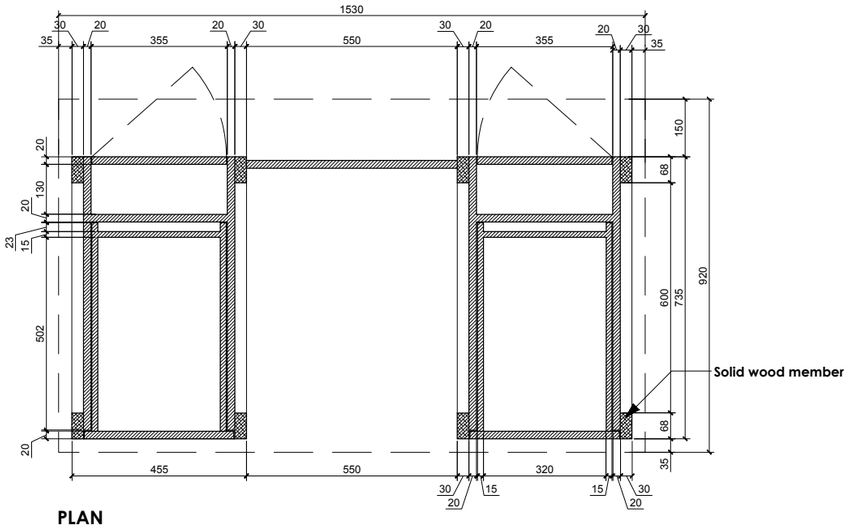
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:

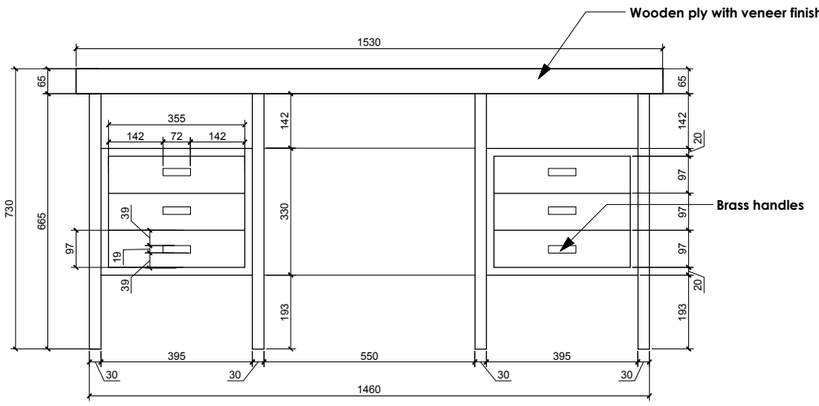
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001

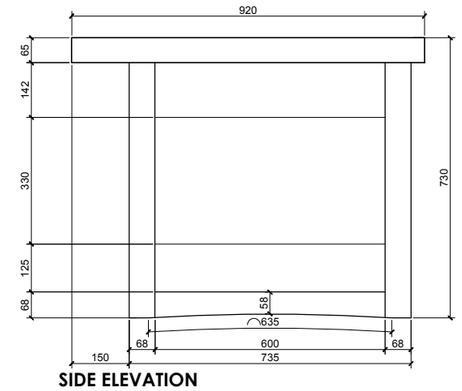
TABLE- G.S./6



PLAN

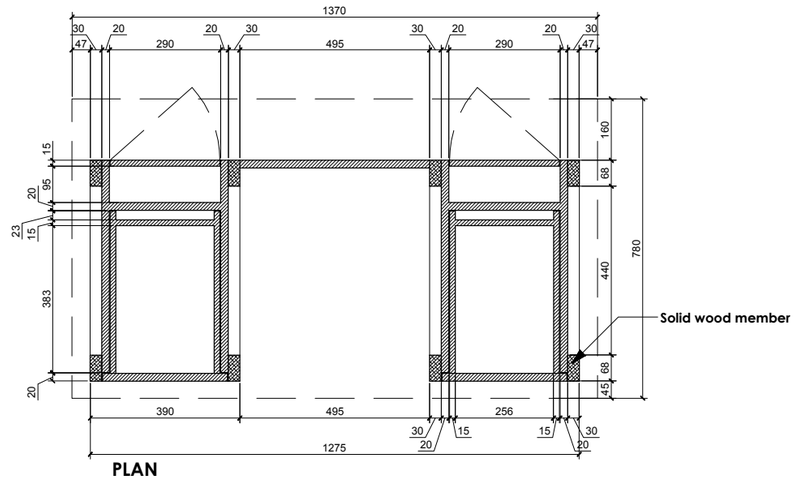


FRONT ELEVATION

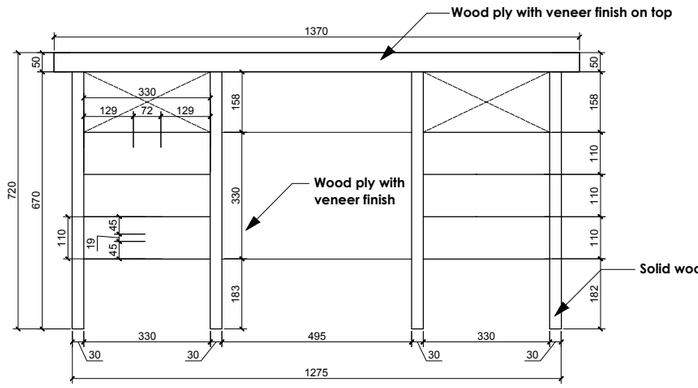


SIDE ELEVATION

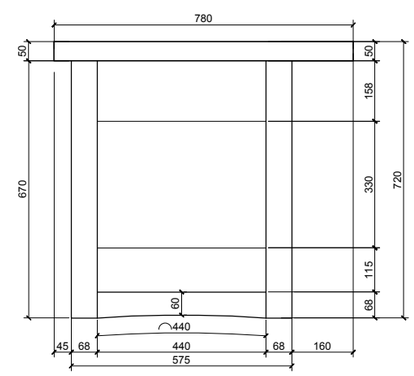
TABLE- G.S./1 & G.S./8



PLAN



FRONT ELEVATION



SIDE ELEVATION

NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)

KEY PLAN

DRAWING SCALE: 1:10

GRAPHIC SCALE:

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	08.11.2016

DRAWING NAME:
FURNITURE- TABLE G.S./6 & G.S./1&8

DRAWING NUMBER: GB/MD/F4/03
GB/MD/F4/04

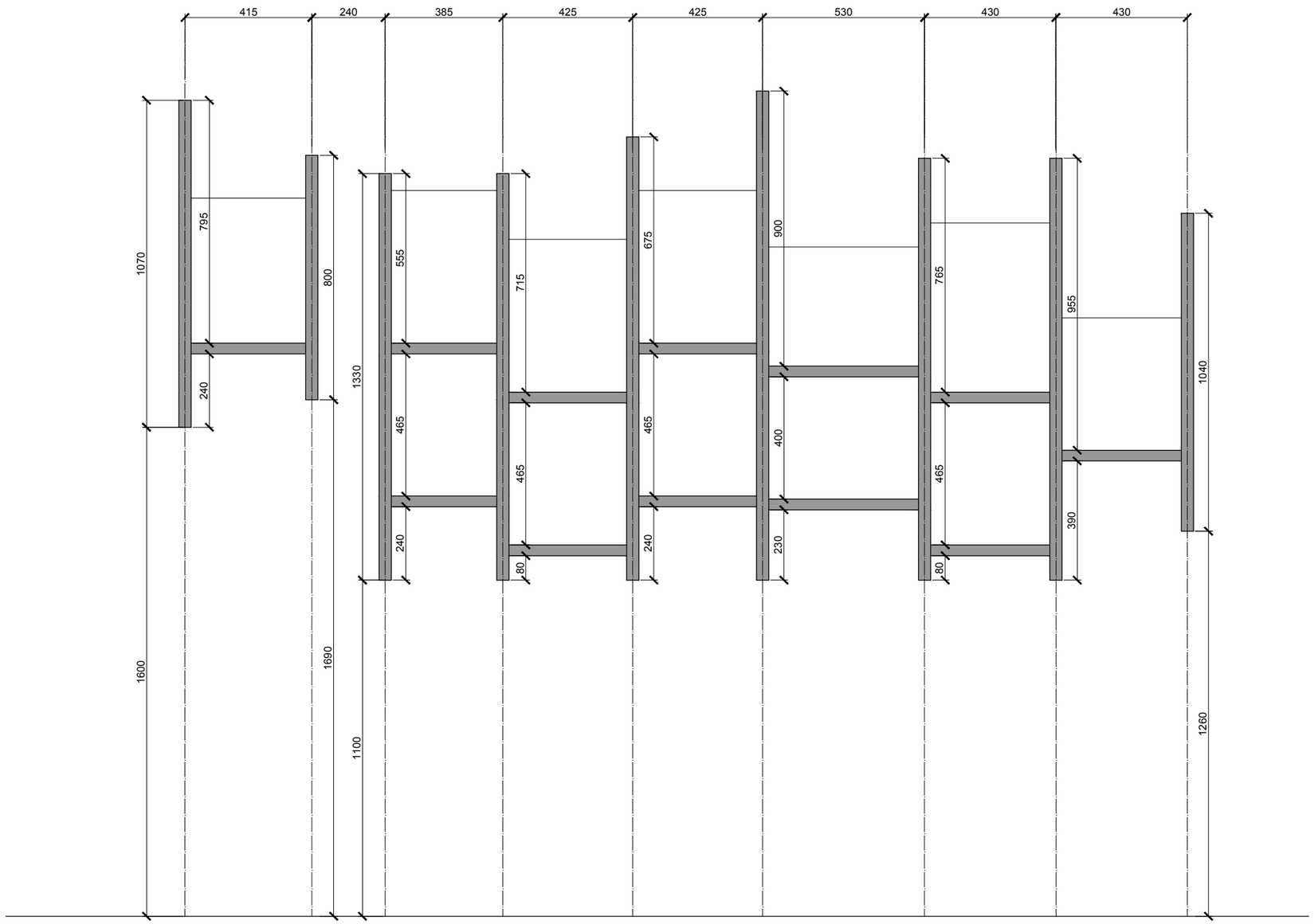
SERIES: DOCUMENTATION DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

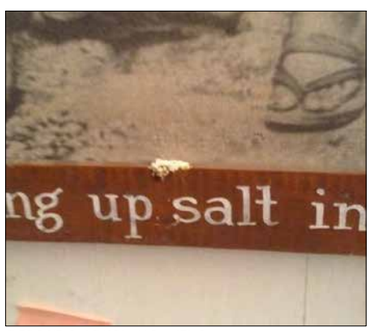
CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



DISPLAY PANEL ELEVATION-2

DISPLAY PANEL-2



DEPOSIT ON DISPLAY PANEL-2

SCRATCHES ON DISPLAY PANEL- 2

CRACKS IN DISPLAY PANEL-2

PAINT DEPOSIT ON DISPLAY PANEL-2

NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)

DESCRIPTION:

1. In the display structure, vertical timber members (40MM thick and 40MM wide) and horizontal timber members (40MM thick and 35MM wide) are nailed to wall.

KEY PLAN

DRAWING SCALE: 1:10

GRAPHIC SCALE:

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	27.09.2016

DRAWING NAME:
CONSTRUCTION DETAILS

DRAWING NUMBER: GB/MD/D-01

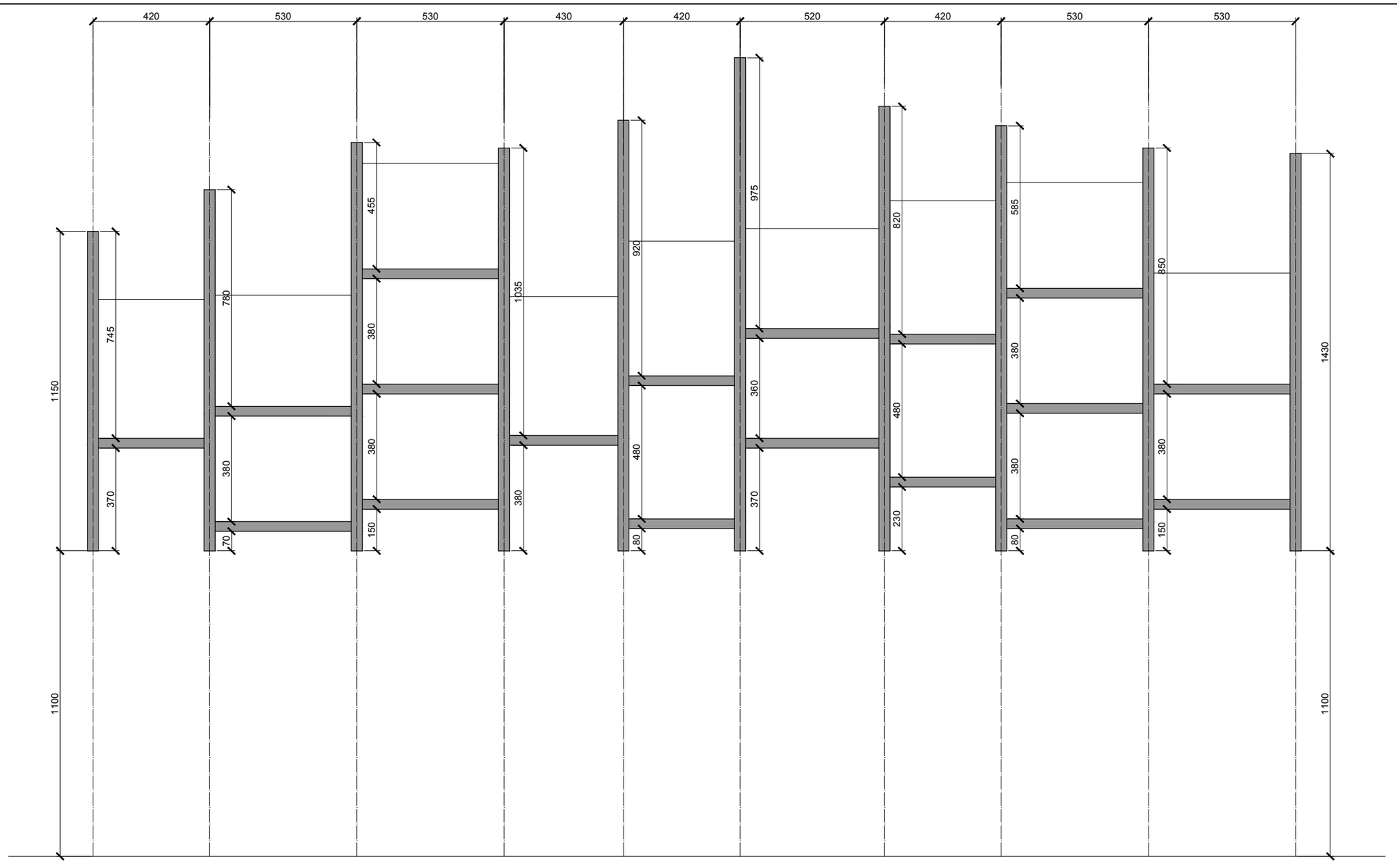
SERIES: DOCUMENTATION DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



DISPLAY PANEL ELEVATION-1

DISPLAY PANEL-1

LOSS OF WOOD IN DISPLAY PANEL-1

LOSS OF WOOD IN DISPLAY PANEL-1

SCRATCHES ON DISPLAY PANEL-1

LOSS OF WOOD IN DISPLAY PANEL-1

NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)

DESCRIPTION:

1. In the display structure, vertical timber members (40MM thick and 40MM wide) and horizontal timber members (40MM thick and 35MM wide) are nailed to wall.

KEY PLAN

DRAWING SCALE: 1:10

GRAPHIC SCALE:

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	27.09.2016

DRAWING NAME:
CONSTRUCTION DETAILS

DRAWING NUMBER: GB/MD/D-02

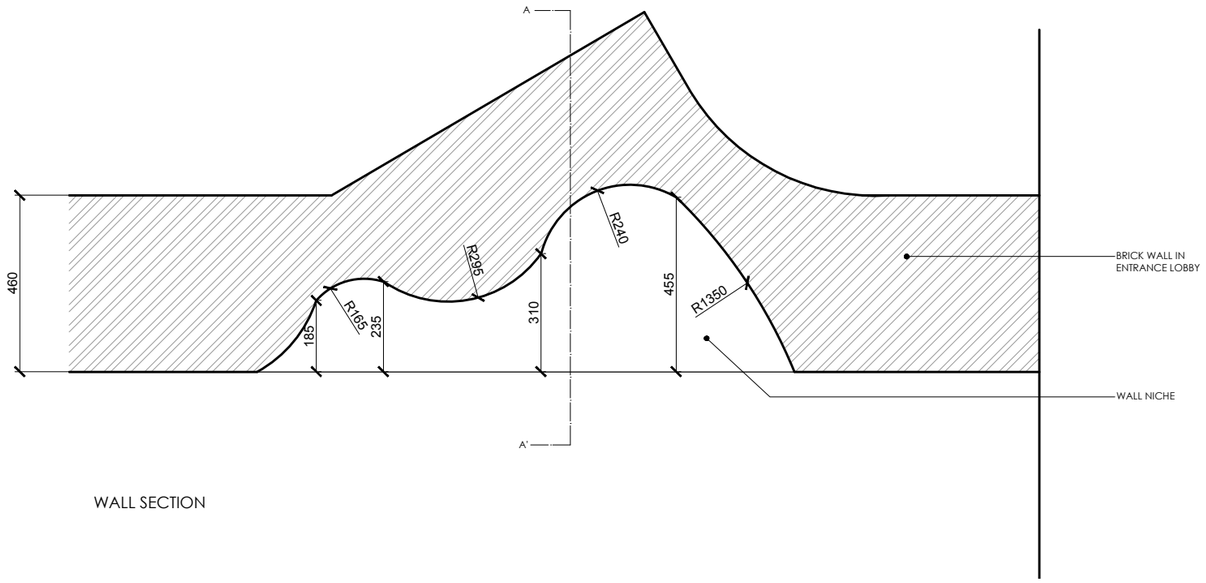
SERIES: DOCUMENTATION DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

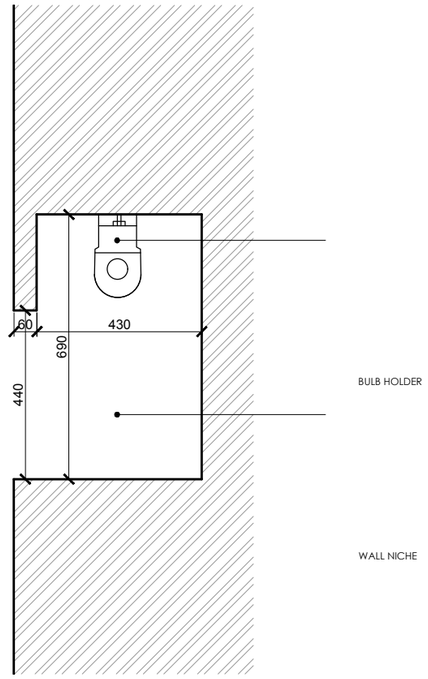
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

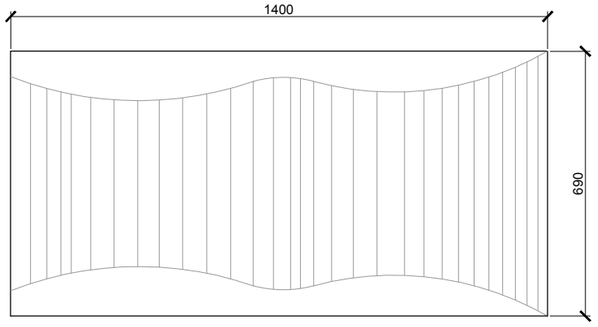
A-258, SOUTH CITY -1
GURGAON-122001



WALL SECTION



DETAIL- AA'



ELEVATION
WALL NICHE DETAILS

ELEVATION
WALL NICHE DETAILS

WALL NICHE WITH COVE LIGHT DETAILS

NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)

KEY PLAN

DRAWING SCALE: 1:10

GRAPHIC SCALE:

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	27.09.2016

DRAWING NAME:
CONSTRUCTION DETAILS

DRAWING NUMBER: GB/MD/D-03

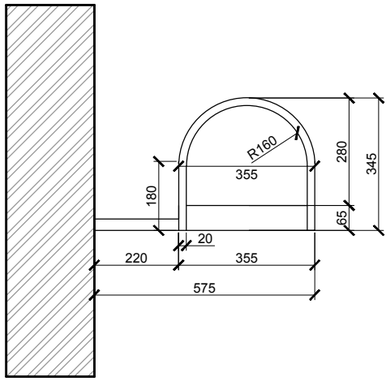
SERIES: DOCUMENTATION DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

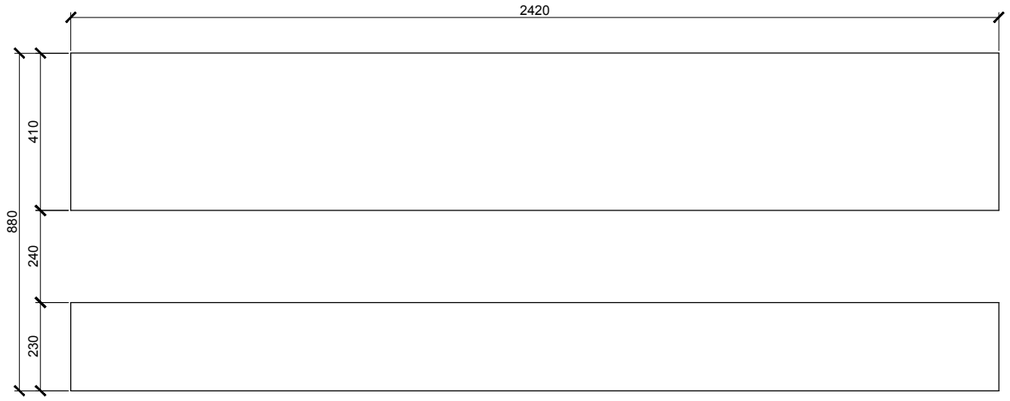
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

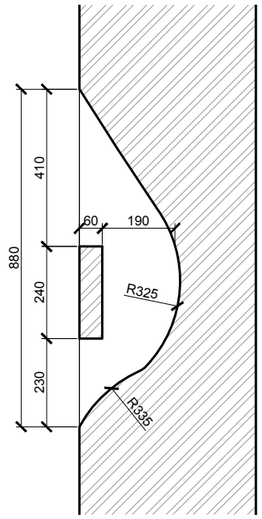
A-258, SOUTH CITY -1
GURGAON-122001



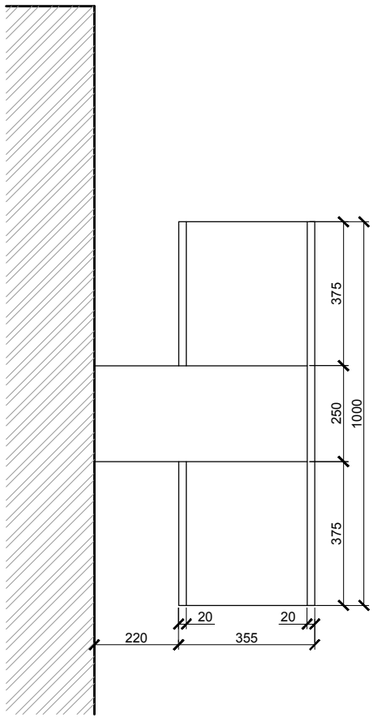
LIGHTING FIXTURE- PLAN



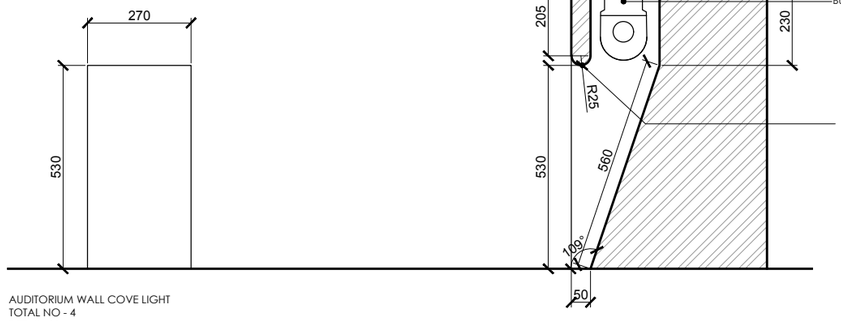
DETAIL- 02
AUDITORIUM LIGHTING FIXTURE- PLAN



AUDITORIUM LIGHTING FIXTURE-
CROSS SECTION



LIGHTING FIXTURE- SIDE ELEVATION
DETAIL- 01



AUDITORIUM WALL COVE LIGHT
TOTAL NO - 4
DETAIL- 03

DIRT DEPOSIT ON LIGHTING FIXTURES

LOSS OF EDGE

AUDITORIUM LIGHTING FIXTURE

PREVIOUS INTERVENTION OF PAINT ON
THE ORIGINAL LIGHTING FIXTURE

DIRT DEPOSIT WALL LIGHTING IN LIBRARY

LOSS OF EDGES AND DEPOSIT

DAMAGED BULB HOLDER IN WALL COVE LIGHT

WALL COVE LIGHT

NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)

KEY PLAN

DRAWING SCALE: 1:10

GRAPHIC SCALE:

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	27.09.2016

DRAWING NAME:
CONSTRUCTION DETAILS

DRAWING NUMBER: GB/MD/D-04

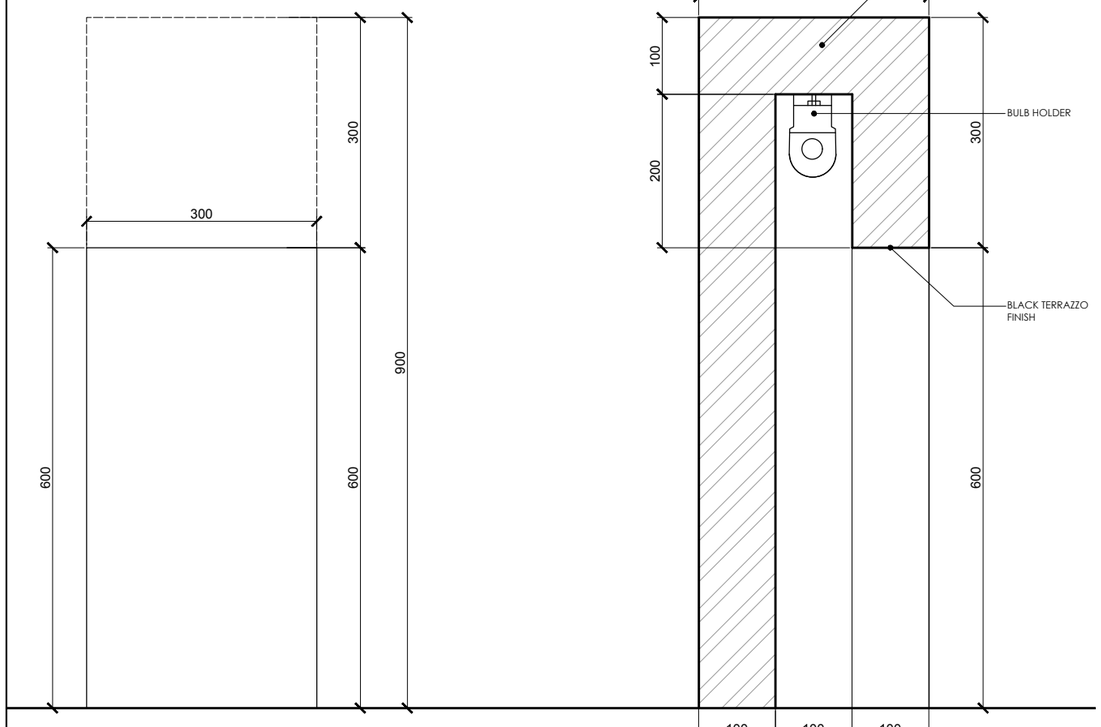
SERIES: DOCUMENTATION DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

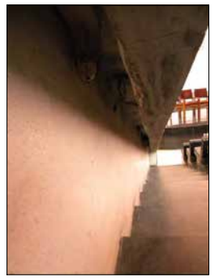
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001

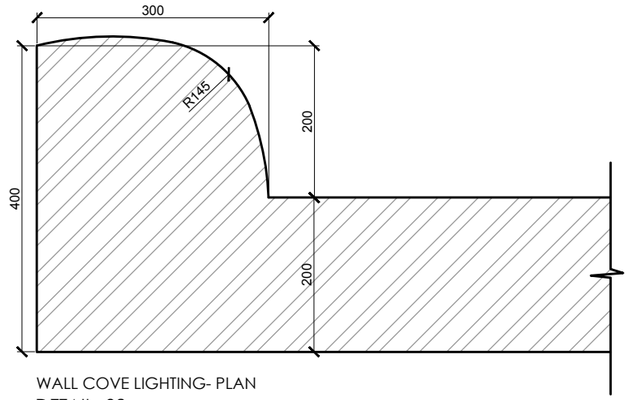


STEPS WALL COVE LIGHT
DETAIL- 01



DAMAGED LIGHTING FIXTURE

WALL COVE LIGHTING

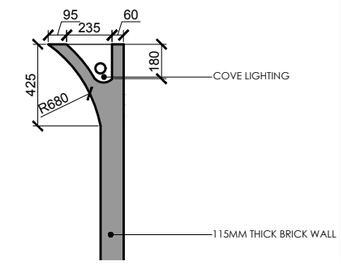


WALL COVE LIGHTING- PLAN
DETAIL- 02

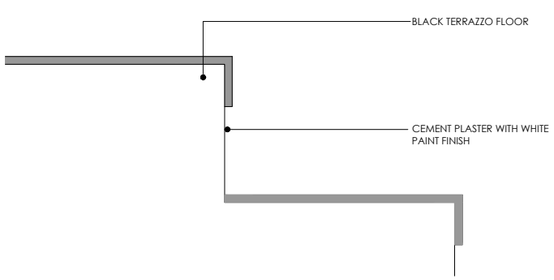
RAILING DETAIL
DETAIL- 03

SATINS AND DEPOSIT IN THE RAILING

SATINS AND DEPOSIT IN THE RAILING

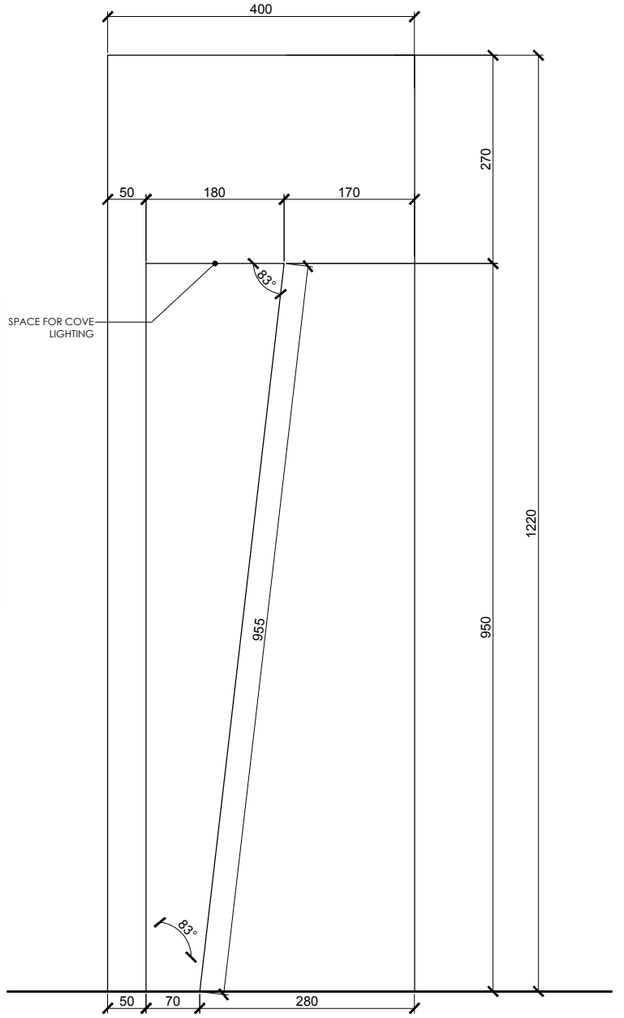


RAILING DETAIL SCALE-1:1
DETAIL- 04



STEPS DETAIL
DETAIL- 04

DIRT DEPOSIT WALL COVE LIGHTING IN MEZZ. LIBRARY



WALL COVE LIGHTING- ELEVATION
DETAIL- 02

NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)

KEY PLAN

DRAWING SCALE: 1:5

GRAPHIC SCALE:

0 50 100 250

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	27.09.2016

DRAWING NAME:
CONSTRUCTION DETAILS

DRAWING NUMBER: GB/MD/D-05

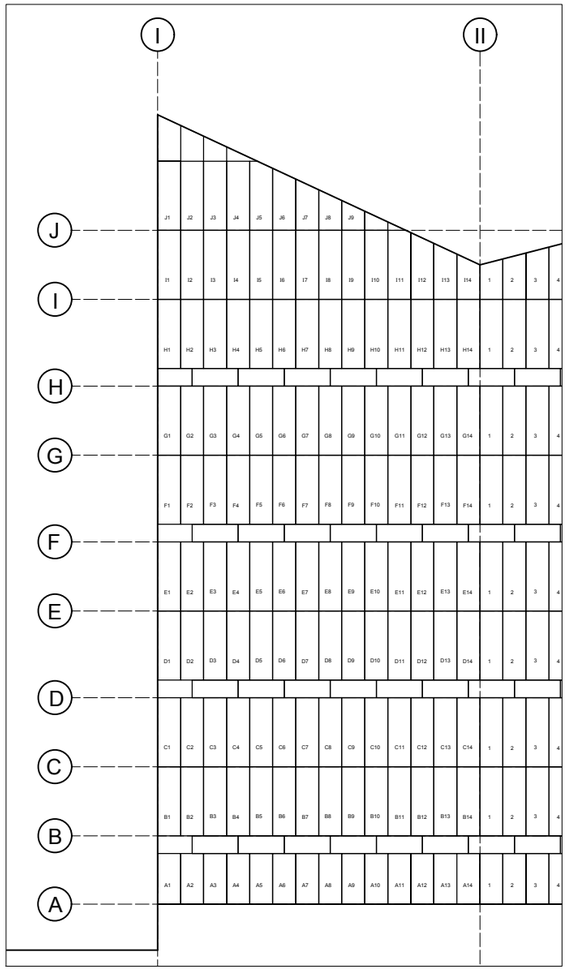
SERIES: DOCUMENTATION DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

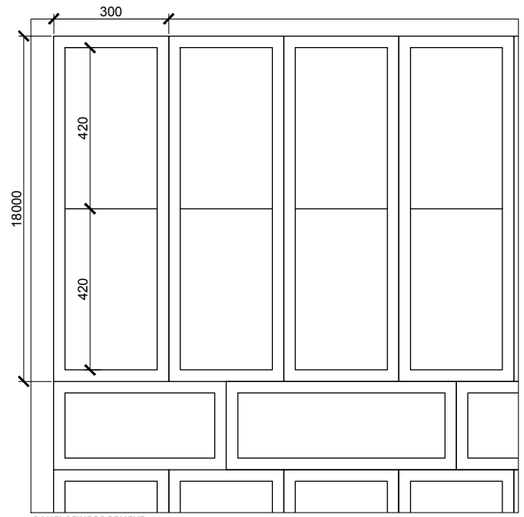
CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001

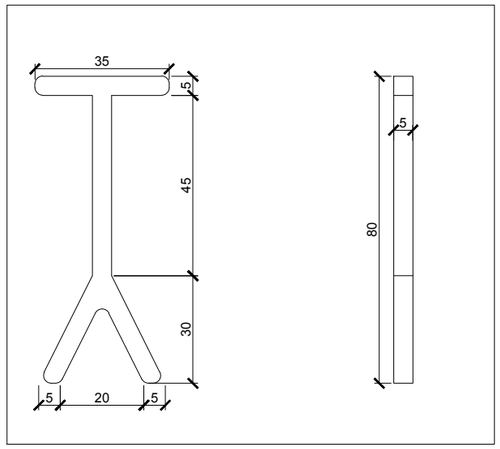


5 MM THICK BRASS CLAMP USED TO ANCHOR PANEL INTO SUBSTRATE
SCALE =1:1

CLADDING PATTERN FOR EXTERNAL ENVELOPE WITH CONTINUOUS HORIZONTAL BANDS CLAD OVER THE RING BEAM

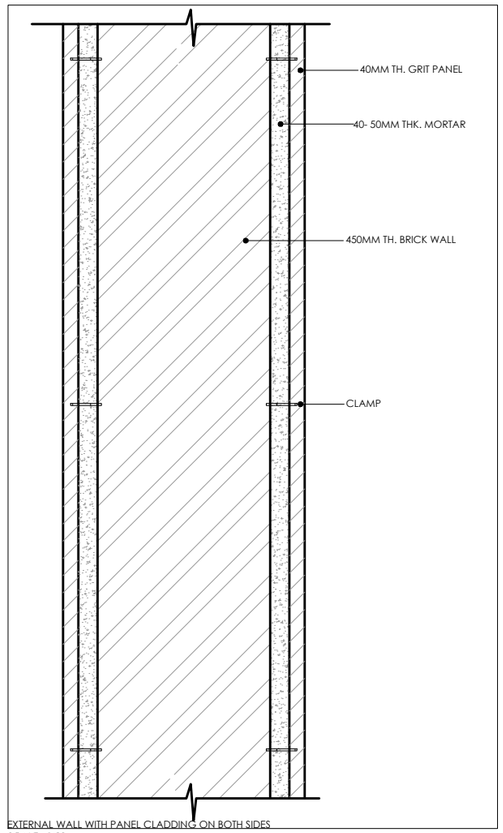


PANEL REINFORCEMENT

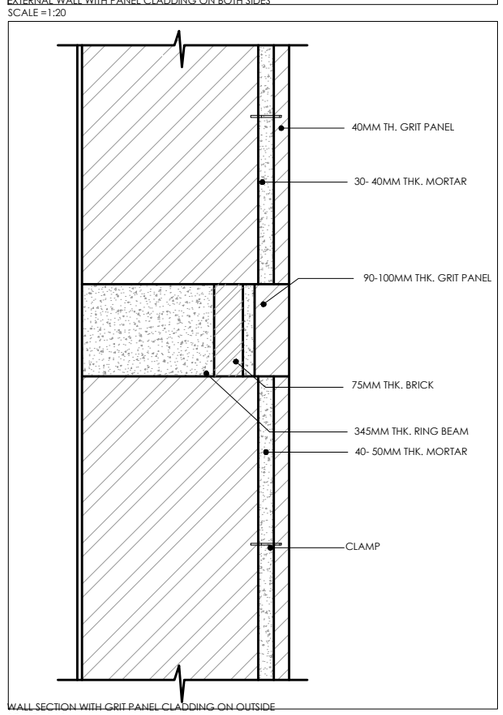


5 MM THICK BRASS CLAMP USED TO ANCHOR PANEL INTO SUBSTRATE
SCALE =1:1

40 MM THICK GRIT PANEL WITH TOP LAYER OF EXPOSED GRIT 5MM AND BOTTOM LAYER OF CONCRETE BASE 35 MM



EXTERNAL WALL WITH PANEL CLADDING ON BOTH SIDES
SCALE =1:20



WALL SECTION WITH GRIT PANEL CLADDING ON OUTSIDE
SCALE =1:10

NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)

DESCRIPTION:

1. External Wall Section has been drawn based on IR test conducted by IIT Chennai, Site measurements, observations & examination of the removal of two partially damaged panel from the exterior.

KEY PLAN

DRAWING SCALE: 1:10

GRAPHIC SCALE:

0 50 100 250 500

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	27.09.2016

DRAWING NAME:
CONSTRUCTION DETAILS

DRAWING NUMBER: GB/MD/D-06

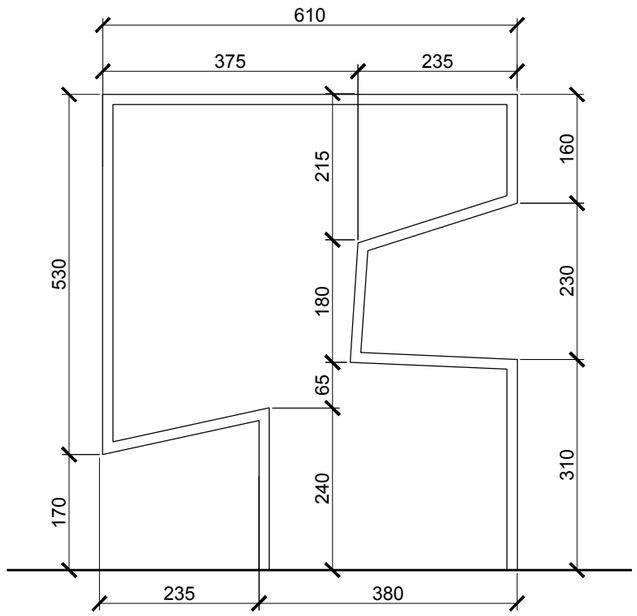
SERIES: DOCUMENTATION DRAWINGS

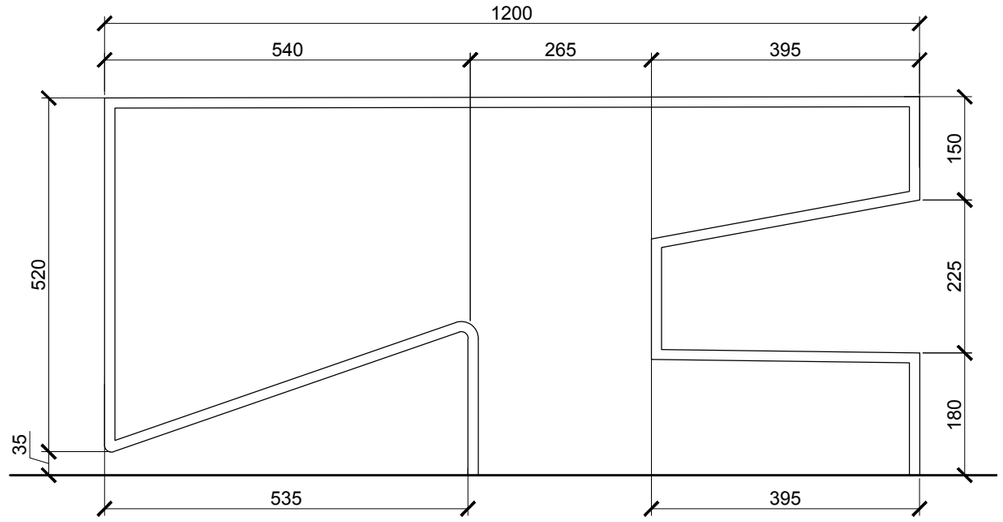
PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001





Railing - 1

Railing - 2

Bird dropping deposit on Railing

NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)

DESCRIPTION:

1. Mild Steel railing is 75mm wide and thickness id 15mm.

KEY PLAN

DRAWING SCALE: 1:10

GRAPHIC SCALE:

0 50 100 250 500

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	27.09.2016

DRAWING NAME:
RAILING DETAIL

DRAWING NUMBER: GB/MD/D-07

SERIES: DOCUMENTATION DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

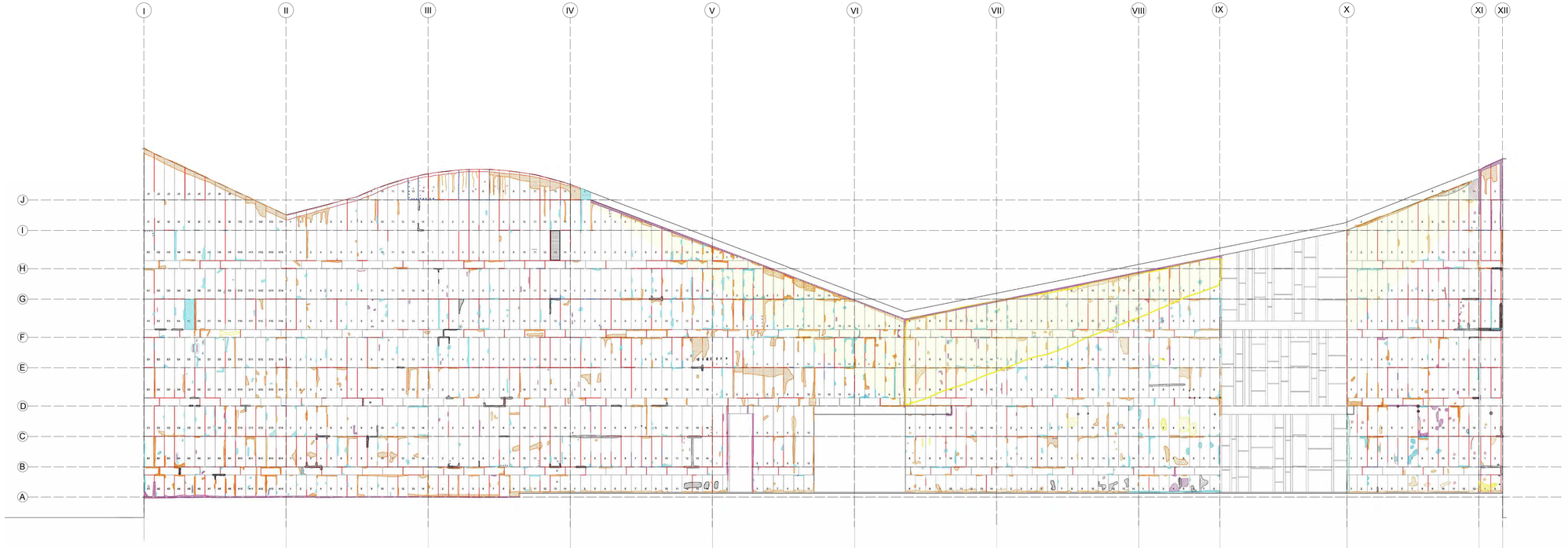
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001

3. CONDITION MAPPING DRAWINGS



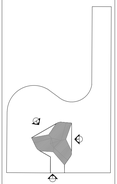
ELEVATION- 1

NOTES:

1. General cleaning with water
2. Repoint all joints
3. Clean/remove vegetation from the joints as per item no.
4. Insect nests and termites to be exterminated from behind the panels during repointing as per item no.

LEGEND

- Open Joint
- Deposit
- Structural crack
- Surface crack
- Loss of material
- Detached panel
- Dilsplaced panel
- Exposed Rebar
- Inappropriate repair
- Biogrowth
- Vegetation
- Discolouration
- Staining
- Termite
- Nail



KEY PLAN

DRAWING SCALE: 1:50

GRAPHIC SCALE:

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	BHAVNA DANDONA	07.11.2016

DRAWING NAME:
ELEVATION- 1

DRAWING NUMBER: GB/CM/E-01

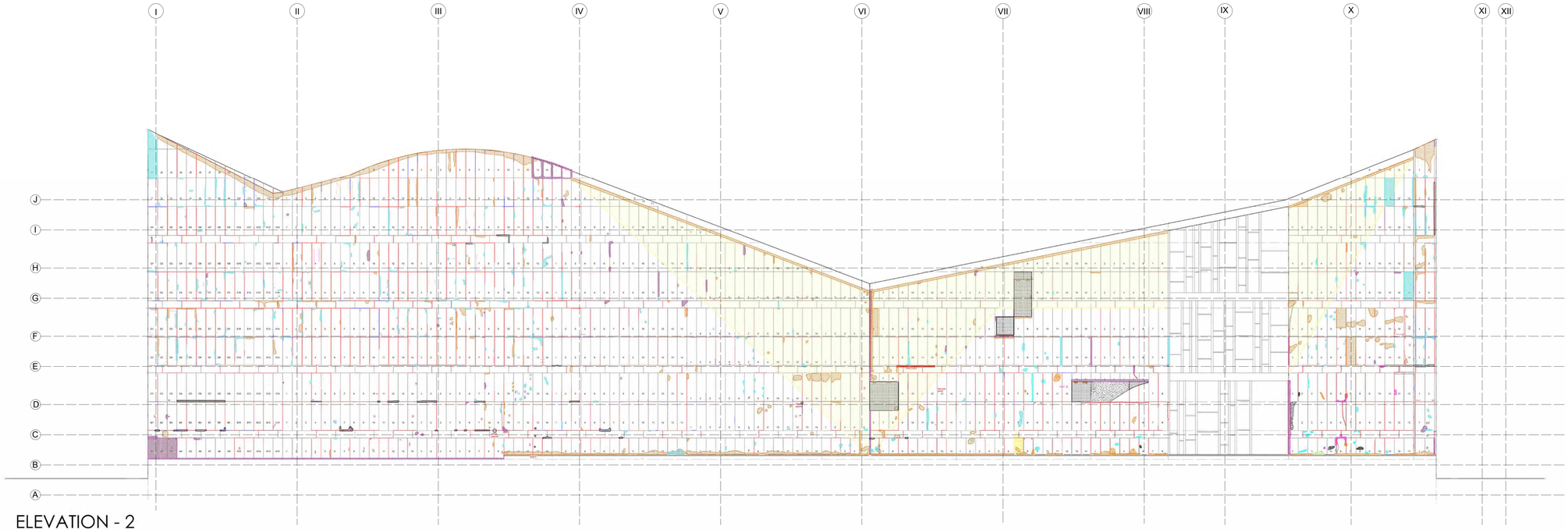
SERIES: CONSERVATION PROPOSAL

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



ELEVATION - 2

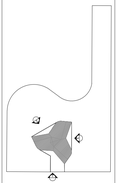
ELEVATION- 2

NOTES:

1. General cleaning with water
2. Repoint all joints
3. Clean/remove vegetation from the joints as per item no.
4. Insect nests and termites to be exterminated from behind the panels during repointing as per item no.

LEGEND

- Open Joint
- Deposit
- Structural crack
- Surface crack
- Loss of material
- D Detached panel
- Dilsplaced panel
- Exposed Rebar
- Inappropriate repair
- Biogrowth
- Vegetation
- Discolouration
- Staining
- Termite
- Nail



KEY PLAN

DRAWING SCALE: 1:50

GRAPHIC SCALE:

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	BHAVNA DANDONA	07.11.2016

DRAWING NAME:
ELEVATION- 2

DRAWING NUMBER: GB/CM/E-02

SERIES: CONSERVATION PROPOSAL

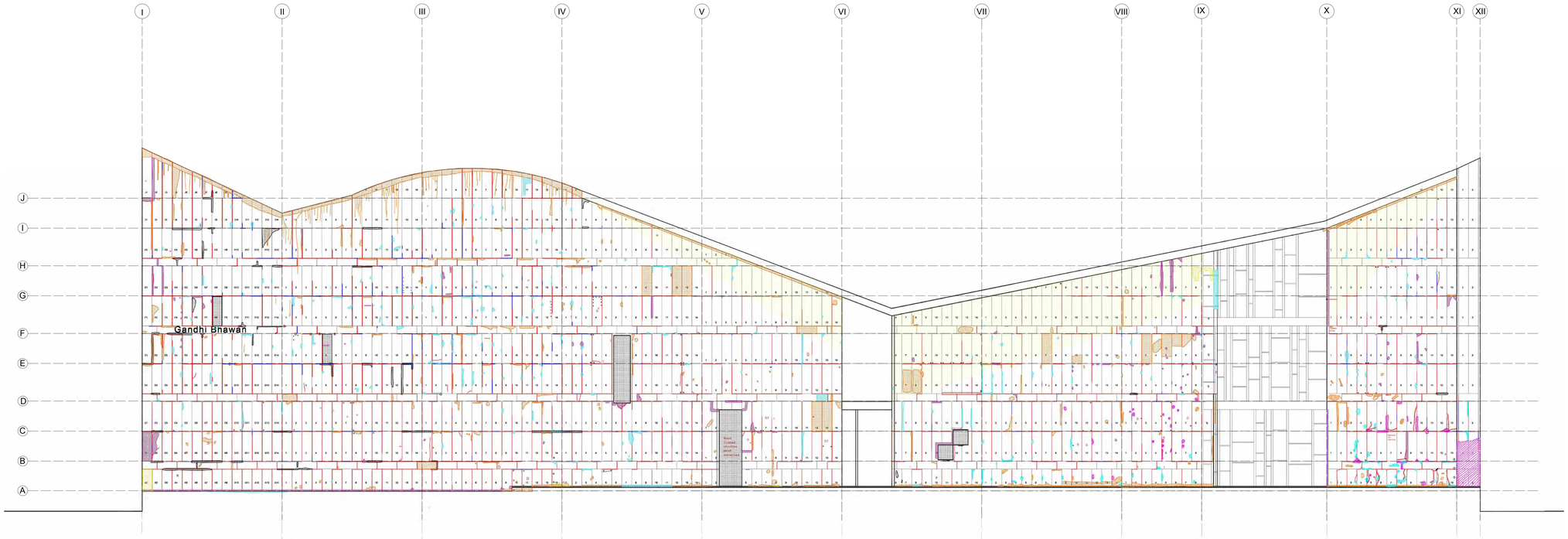
PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



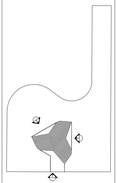
ELEVATION- 3

NOTES:

1. General cleaning with water
2. Repoint all joints
3. Clean/remove vegetation from the joints as per item no.
4. Insect nests and termites to be exterminated from behind the panels during repointing as per item no.

LEGEND

- Open Joint
- Deposit
- Structural crack
- Surface crack
- Loss of material
- Detached panel
- Dislocated panel
- Exposed Rebar
- Inappropriate repair
- Biogrowth
- Vegetation
- Discolouration
- Staining
- Termite
- Nail



KEY PLAN

DRAWING SCALE: 1:50

GRAPHIC SCALE:

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	BHAVNA DANDONA	07.11.2016

DRAWING NAME:
ELEVATION- 3

DRAWING NUMBER: GB/CM/E-03

SERIES: CONSERVATION PROPOSAL

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

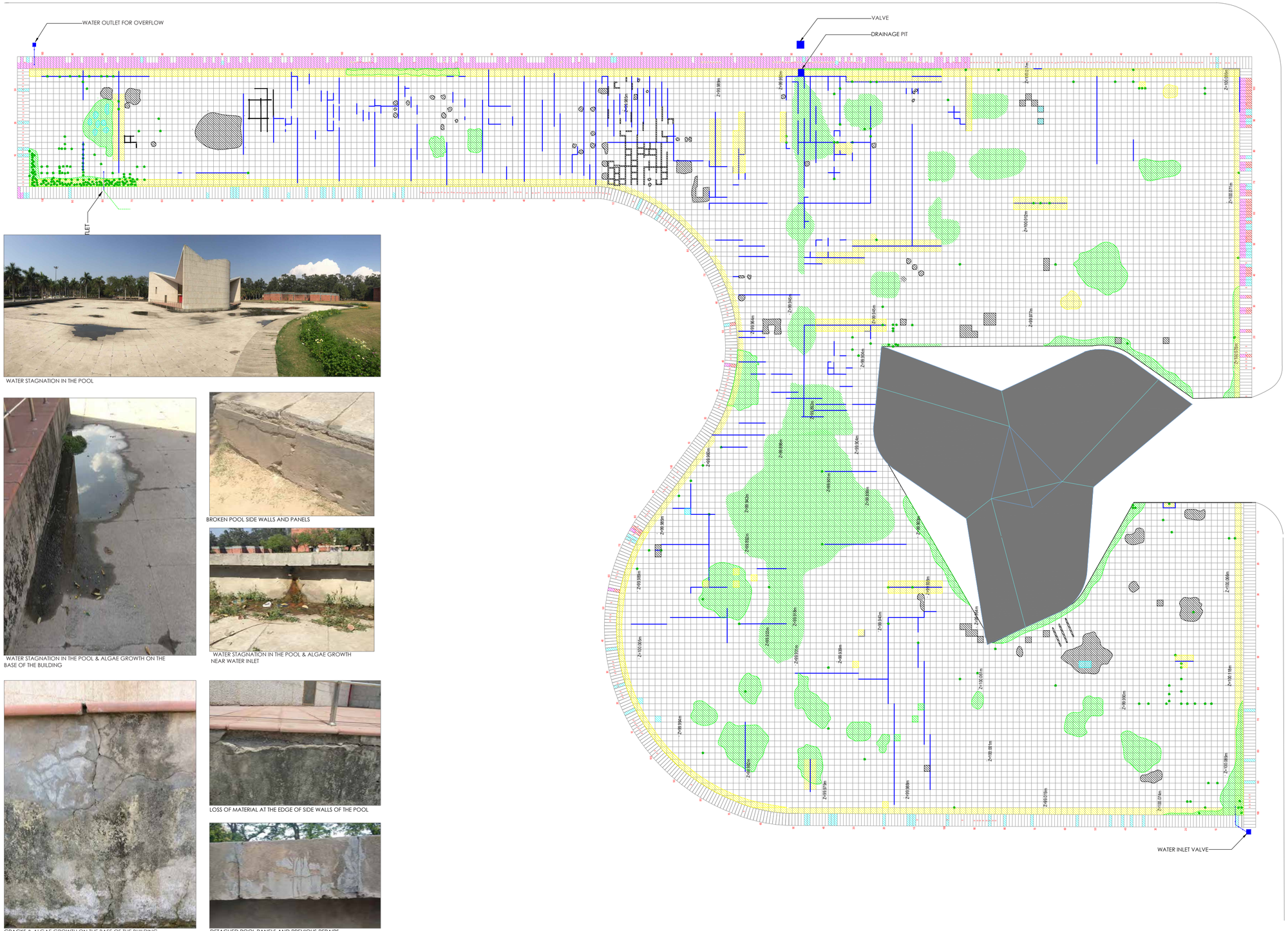
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001

Towards Gate no.-1



Towards A.C.Joshi Library

Towards Department of Gandhian & Peace studies & Fine Arts Museum

WATER STAGNATION IN THE POOL

WATER STAGNATION IN THE POOL & ALGAE GROWTH ON THE BASE OF THE BUILDING

BROKEN POOL SIDE WALLS AND PANELS

WATER STAGNATION IN THE POOL & ALGAE GROWTH NEAR WATER INLET

CRACKS & ALGAE GROWTH ON THE BASE OF THE BUILDING

LOSS OF MATERIAL AT THE EDGE OF SIDE WALLS OF THE POOL


DETACHED POOL PANELS AND PREVIOUS REPAIRS

NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)

DEPOSIT	
BIO GROWTH	
VEGETATION	*
MATERIAL LOSS	
UNDULATIONS	
JOINT OPENINGS	
DETATCHED	D
CRACK	
LOSS OF MATERIAL	
INAPPROPRIATE REPAIR	

KEY PLAN

DRAWING SCALE: 1:200

GRAPHIC SCALE:

0M 2M 4M 8M

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	SUCHANDRA BARDHAN	27.09.2016

DRAWING NAME:
POOL PLAN

DRAWING NUMBER: GB/CM/P-01

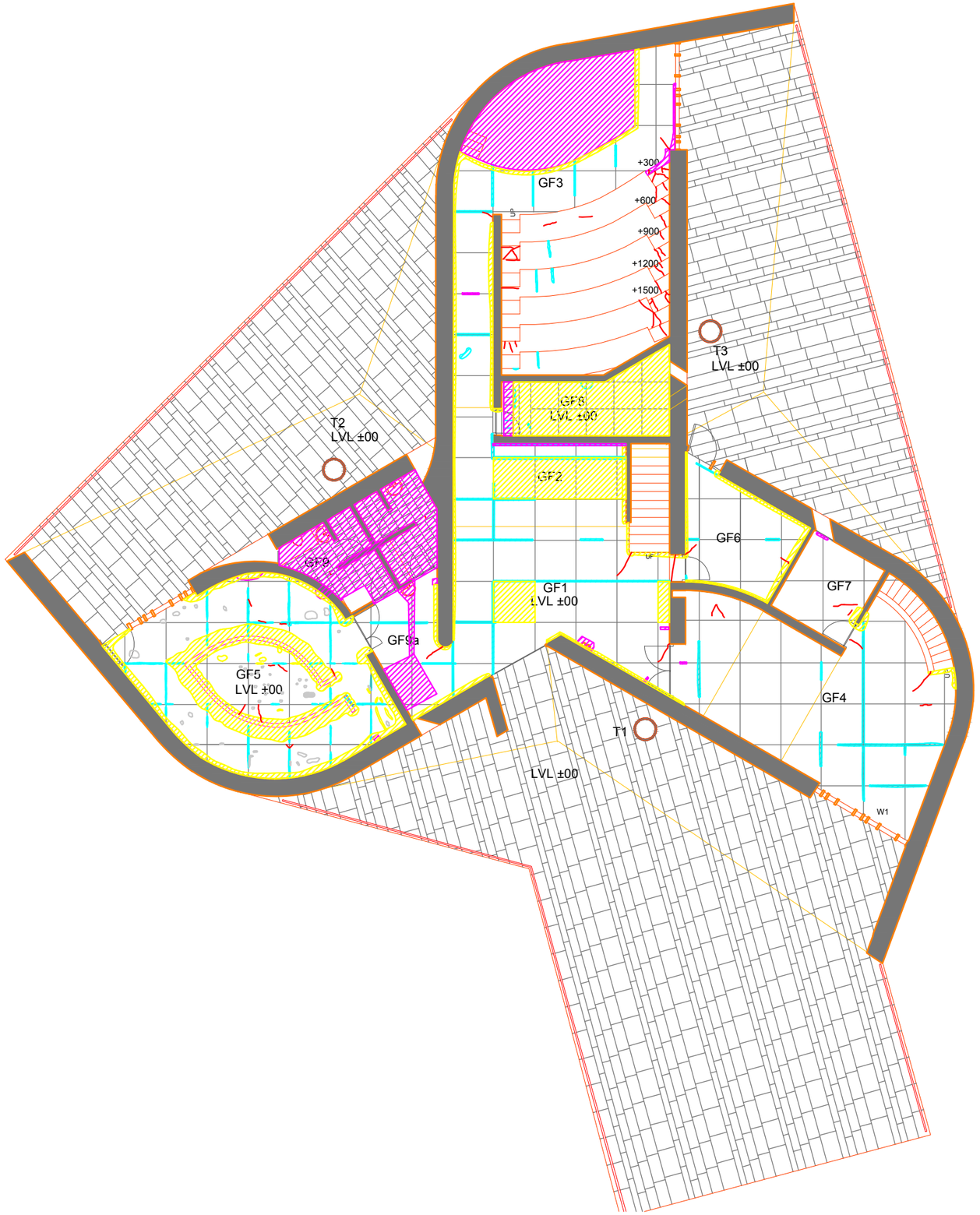
SERIES: CONDITION MAPPING

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



STAINS ON TERRAZZO FLOOR IN SEMINAR ROOM (GF5)

BROKEN FLOOR IN STORE ROOM (GF8)

PREVIOUS INTERVENTIONS IN THE WHITE TERRAZZO FLOORS NEAR TOILETS (GF 9a)

PREVIOUS INTERVENTIONS ON THE STAGE(GF 3)

INTERVENTION IN OFF WHITE TERRAZZO FLOOR COMMITTEE ROOM (GF5)

NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)

LEGEND:

Material Loss	
Cracks	
Stains	
Deposit	
Termite	
Previous Repair/Intervention	

KEY PLAN

DRAWING SCALE: 1:10

GRAPHIC SCALE:

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	27.09.2016

DRAWING NAME:
LANDSCAPE PLAN

DRAWING NUMBER: GB/MD/P-01

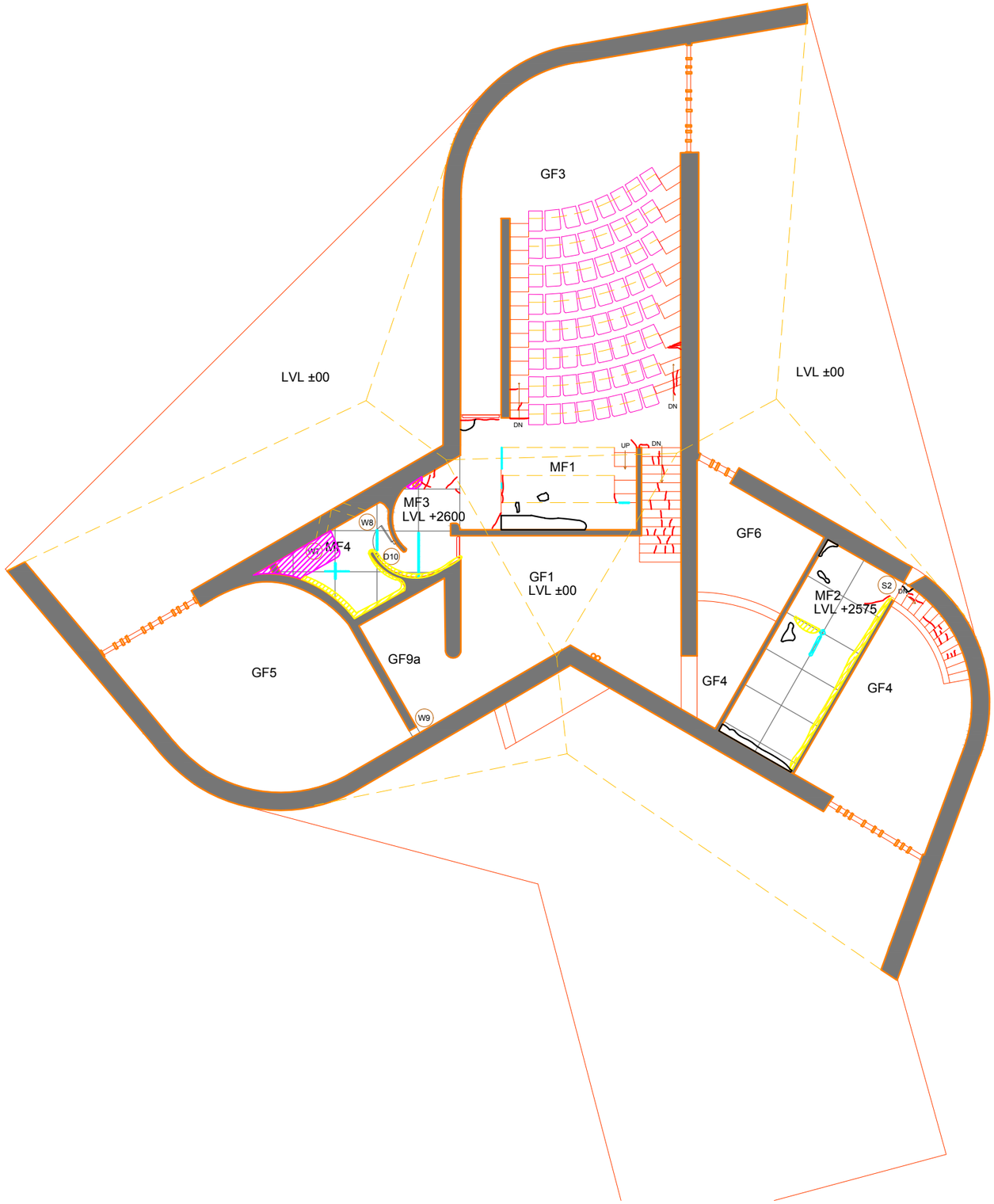
SERIES: DOCUMENTATION DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



LOSS OF EDGES & DEPOSIT ON BLACK TERRAZZO FLOOR IN MEZZ AUDITORIUM (GF3)

STAINS ON BLACK TERRAZZO FLOOR IN MEZZ. LIBRARY (MF2)

CRACKS IN BLACK TERRAZZO STEPS TO MEZZ. LIBRARY (MF2)

CEMENT FLOOR ADDED ON BLACK TERRAZZO FLOOR IN MEZZ. STORE (MF4)

CRACKS IN BLACK TERRAZZO FLOOR (MF3)

NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)

LEGEND:

Material Loss	
Cracks	
Stains	
Deposit	
Termite	
Previous Repair/Intervention	

KEY PLAN

DRAWING SCALE: 1:10

GRAPHIC SCALE:

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	27.09.2016

DRAWING NAME:
LANDSCAPE PLAN

DRAWING NUMBER: GB/MD/P-01

SERIES: DOCUMENTATION DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
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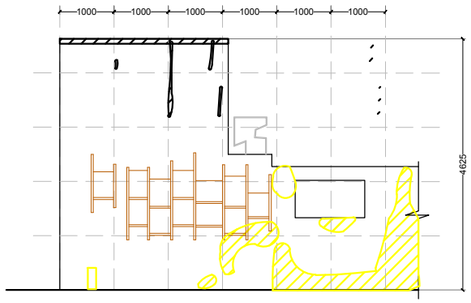
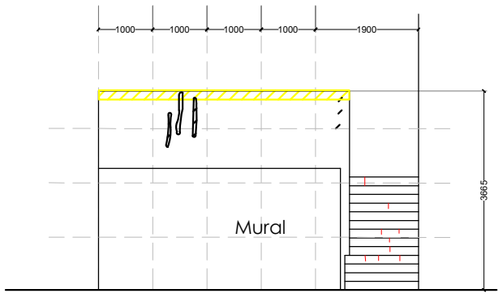
CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



GF1_E1



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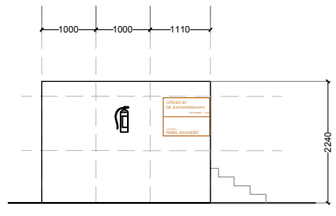

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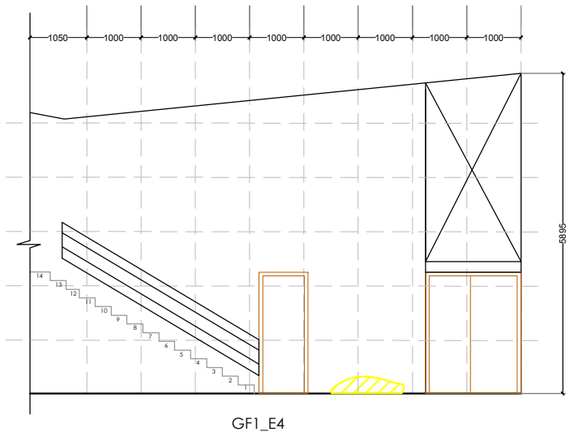

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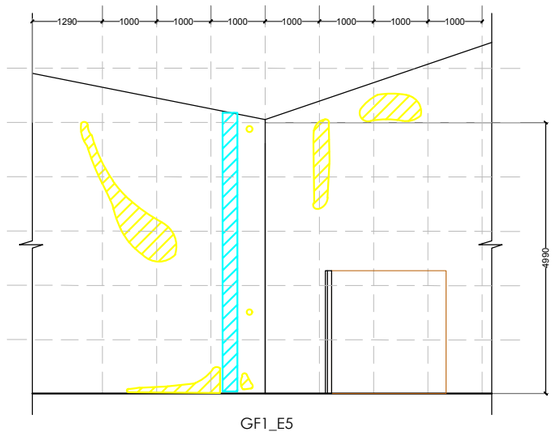
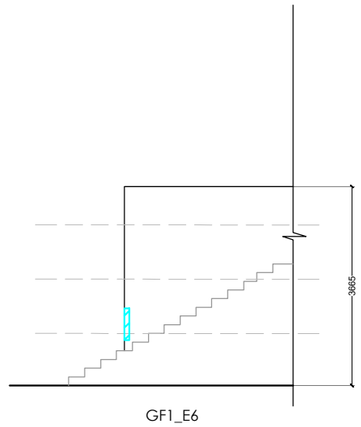


GF1_E5



GF1_E6

CRACK IN BLACK TERRAZZO FINISH STEPS IN LOBBY

STAINS ON WALL

PLASTER LOSS ON WALL

SALT DEPOSIT ON THE MURAL WALL

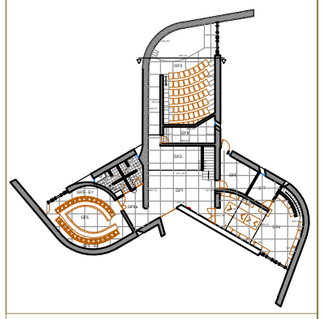
DEPOSIT ON SIGNAGE BOARD

NOTES:

1. Pest control to be carried out for all interior wall surfaces
2. Electrical conduits (to remain?)
3. Remove all unused nails and patch the holes
4. Extrinsic deposits to be removed during next painting and maintenance cycle
5. All the plaster defects to be monitored.
6. Cracks to be monitored

LEGEND:

Material Loss	
Cracks	
Plaster defect	
Deposit	
Nails	
Termite	
Previous Repair/Intervention	



KEY PLAN

DRAWING SCALE: 1:100

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	

DRAWING NAME:
INTERIOR ELEVATIONS

DRAWING NUMBER: GB/CM/INT/E-01

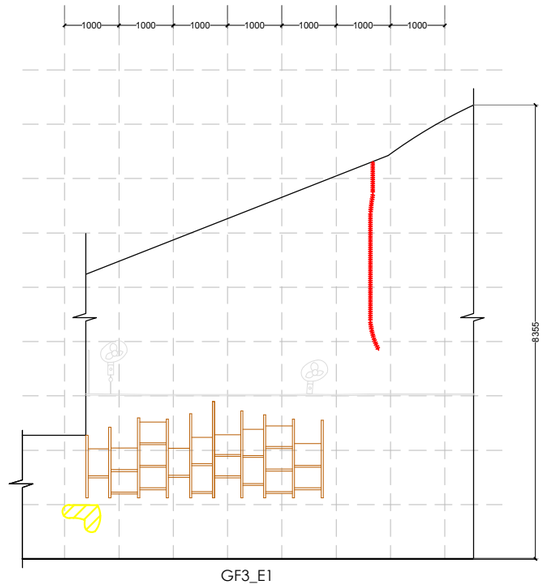
SERIES: CONDITION MAPPING DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

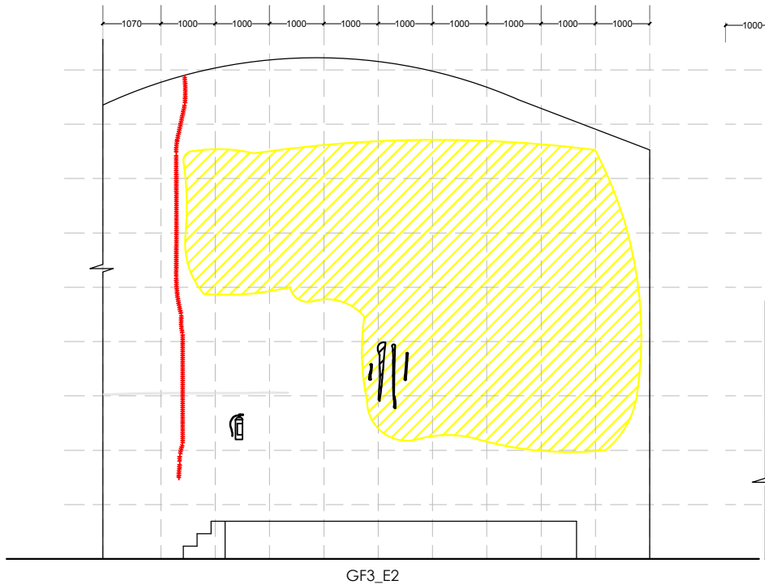
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

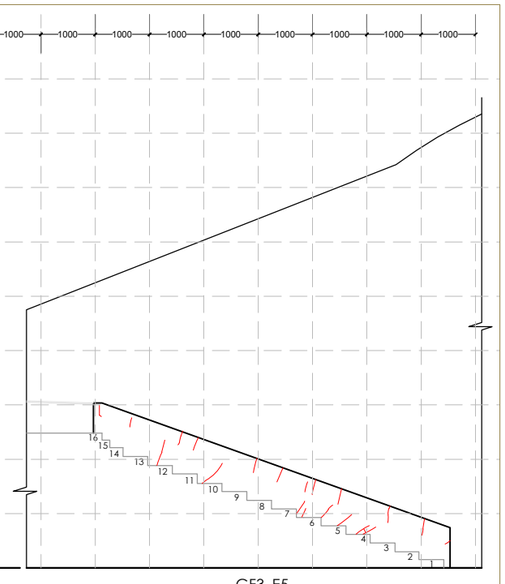
A-258, SOUTH CITY -1
GURGAON-122001



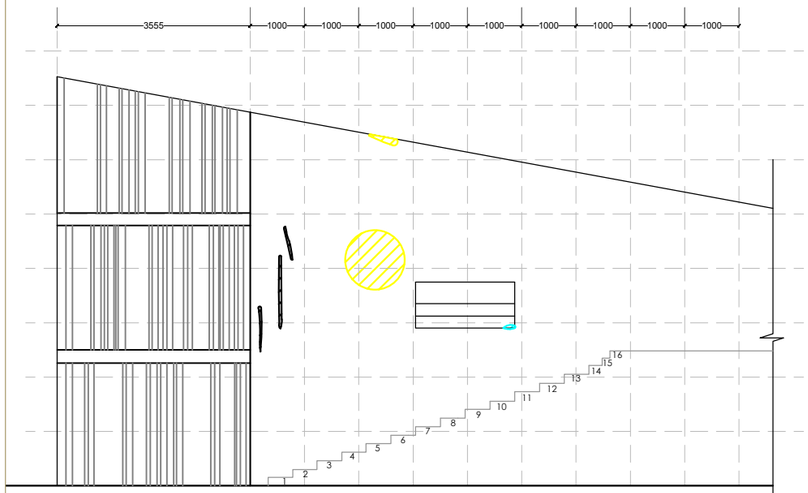
GF3_E1



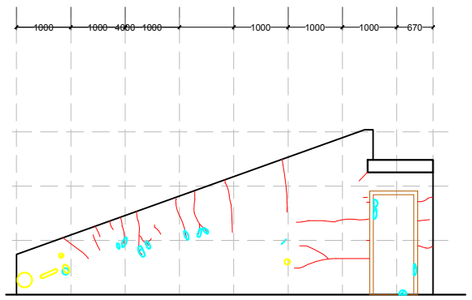
GF3_E2



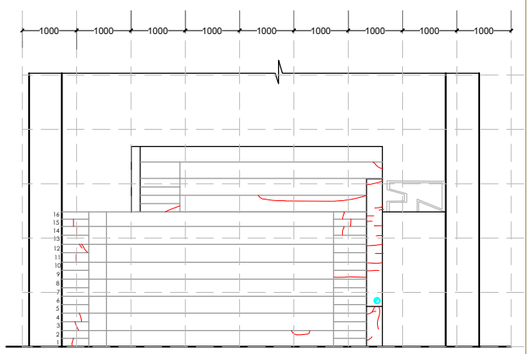
GF3_E5



GF3_E3



GF3_E4



GF3_E6

CRACK IN BLACK TERRAZZO FLOOR STEPS

CRACK IN BLACK TERRAZZO WALL

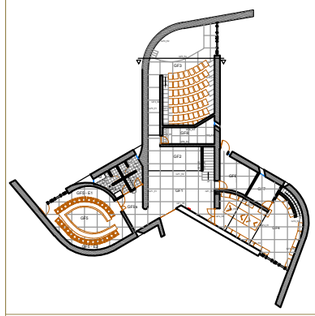
DEPOSIT ON MILD STEEL RAILING

PREVIOUS INTERVENTION IN AUDITORIUM STEPS

MATERIAL LOSS IN WALL COVE LIGHT

NOTES:

1. Pest control to be carried out for all interior wall surfaces
2. Electrical conduits (to remain?)
3. Remove all unused nails and patch the holes
4. Extrinsic deposits to be removed during next painting and maintenance cycle
5. All the plaster defects to be monitored.
6. Cracks to be monitored



KEY PLAN

DRAWING SCALE: 1:100

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	

DRAWING NAME:
INTERIOR ELEVATIONS

DRAWING NUMBER: GB/CM/INT/E-02

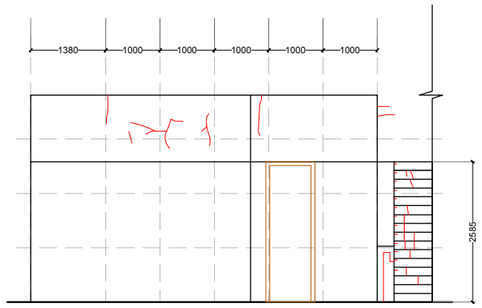
SERIES: CONDITION MAPPING DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

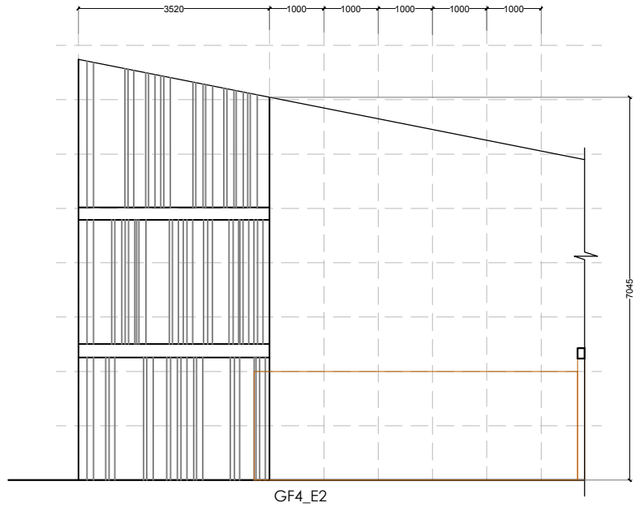
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

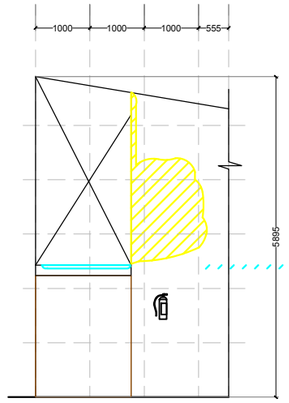
A-258, SOUTH CITY -1
GURGAON-122001



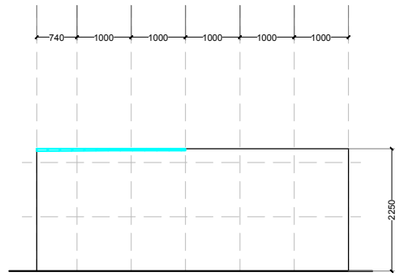
GF4_E1



GF4_E2



GF4_E3



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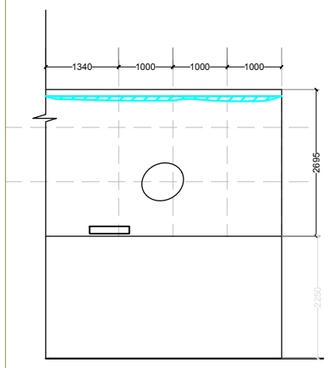

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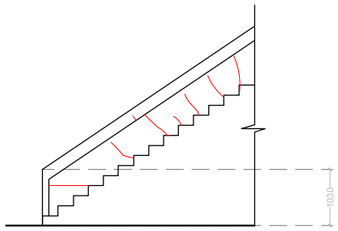
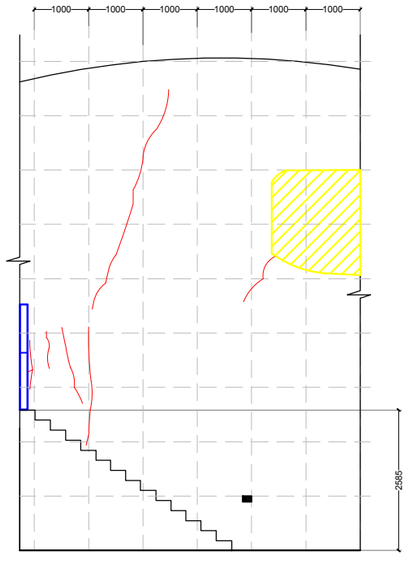


GF4_E6



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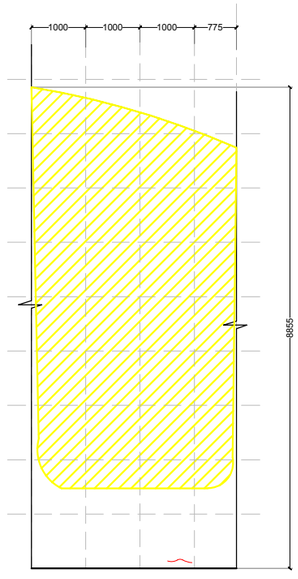
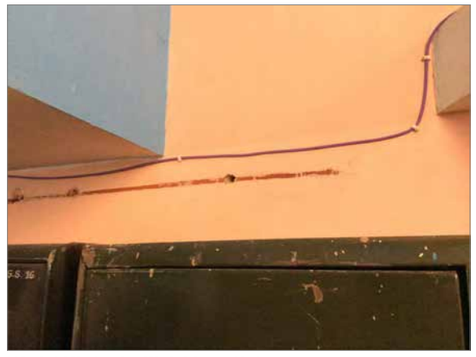


GF4_E8



PREVIOUS REPAIR AND INTERVENTION IN LIBRARY

CRACKS IN LIBRARY STAIRCASE

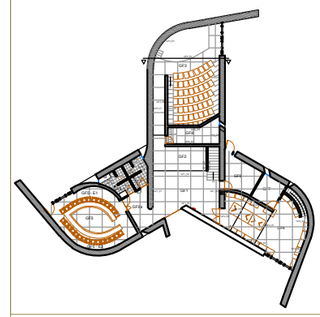
PREVIOUS INTERVENTION OF LIBRARY STACKS AND ELECTRICAL WIRING

DEPOSIT ON THE MEZZ. LIBRARY WALL

PLASTER DEFECTS ON WALL IN LIBRARY

NOTES:

1. Pest control to be carried out for all interior wall surfaces
2. Electrical conduits (to remain?)
3. Remove all unused nails and patch the holes
4. Extrinsic deposits to be removed during next painting and maintenance cycle
5. All the plaster defects to be monitored.
6. Cracks to be monitored



KEY PLAN

DRAWING SCALE: 1:100

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	

DRAWING NAME:
INTERIOR ELEVATIONS

DRAWING NUMBER: GB/CM/INT/E-03

SERIES: CONDITION MAPPING DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
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CLIENT:
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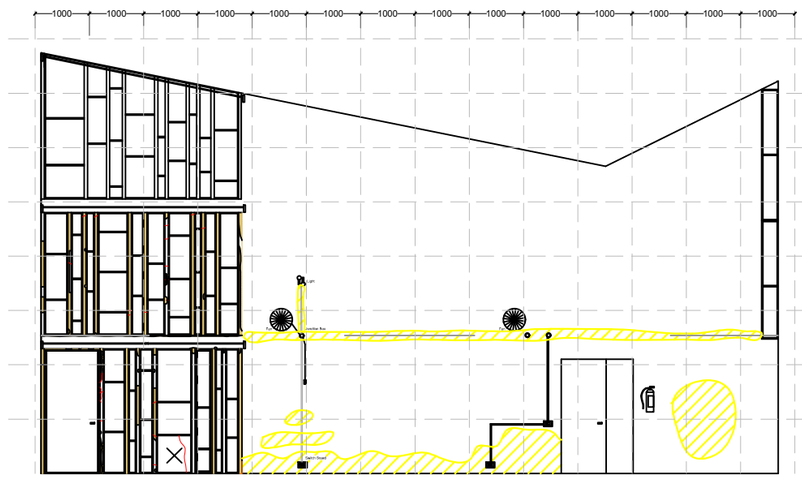
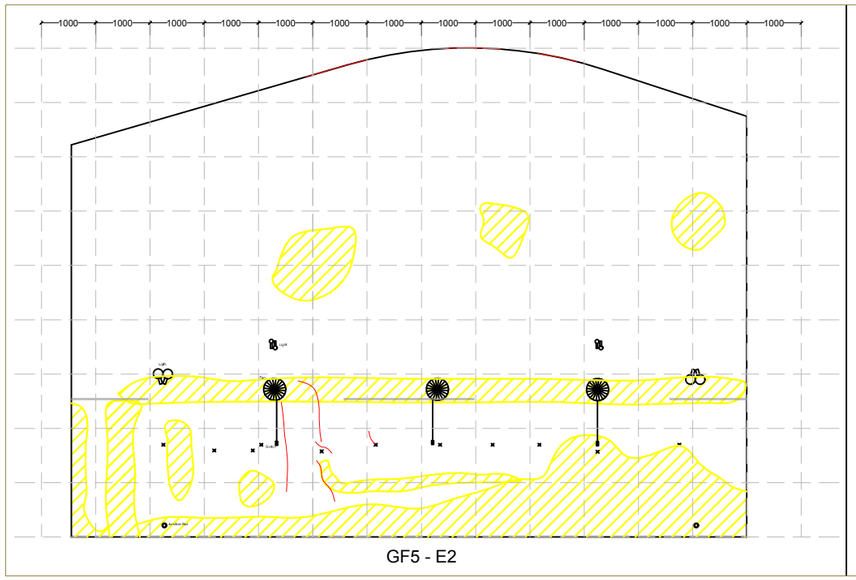
CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

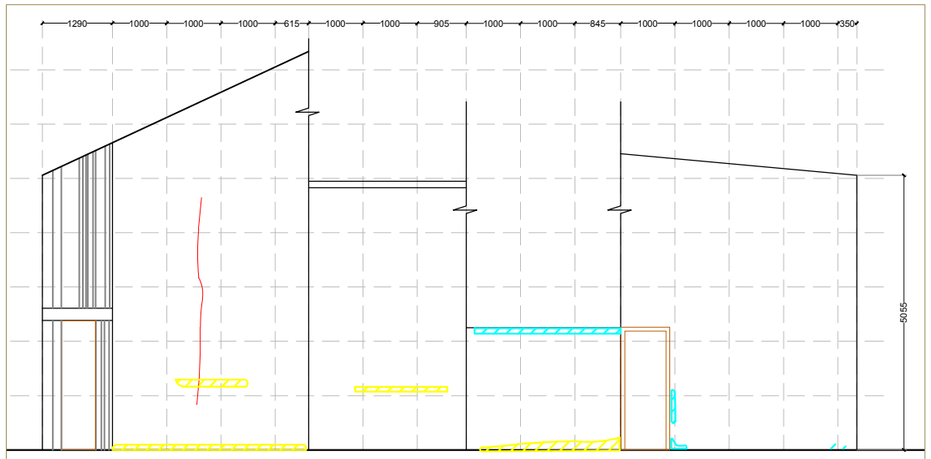
A-258, SOUTH CITY -1
GURGAON-122001



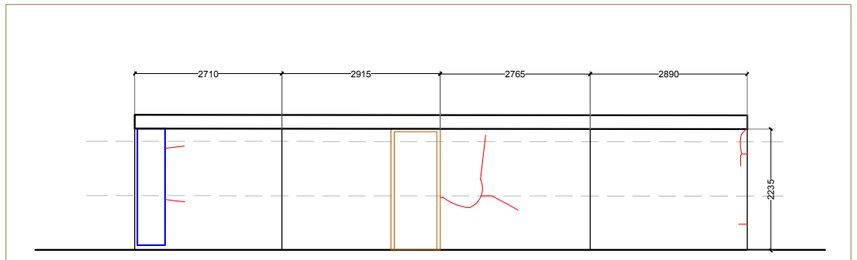
GF5-E1



GF5 - E2



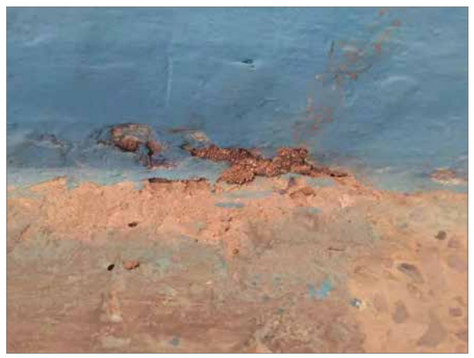
GF6



GF7

CRACK IN FIXED TABLE IN COMMITTEE ROOM

PLASTER DEFECTS ON THE WALL



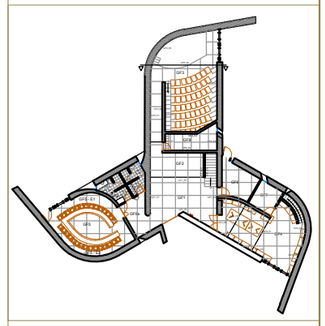
TERMITE ON THE WALL

CRACKS IN PLASTERED WALL

MATERIAL LOSS NEAR THE DOOR

NOTES:

1. Pest control to be carried out for all interior wall surfaces
2. Electrical conduits (to remain?)
3. Remove all unused nails and patch the holes
4. Extrinsic deposits to be removed during next painting and maintenance cycle
5. All the plaster defects to be monitored.
6. Cracks to be monitored



KEY PLAN

DRAWING SCALE: 1:100

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	

DRAWING NAME:
INTERIOR ELEVATIONS

DRAWING NUMBER: GB/CM/INT/E-04

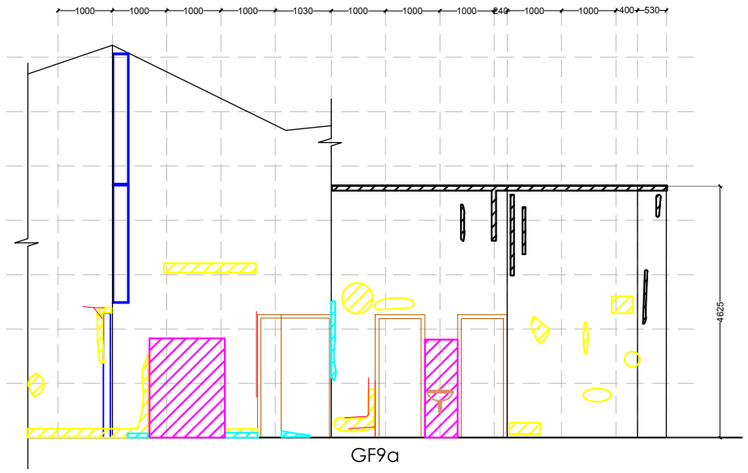
SERIES: CONDITION MAPPING DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

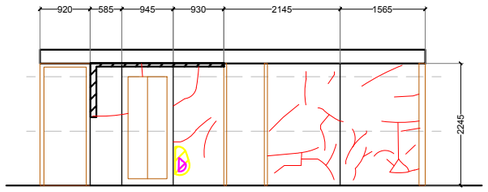
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

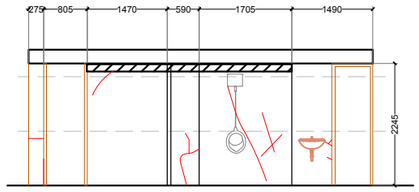
A-258, SOUTH CITY -1
GURGAON-122001



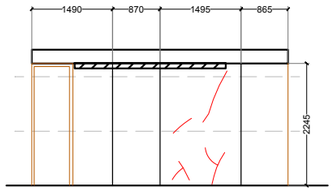
GF9a



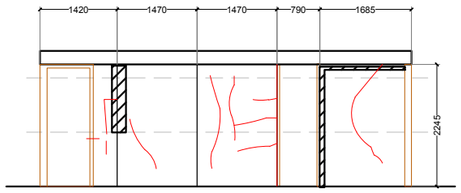
GF9(G)_E1



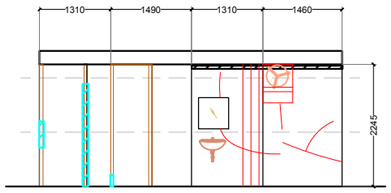
GF9(G)_E2



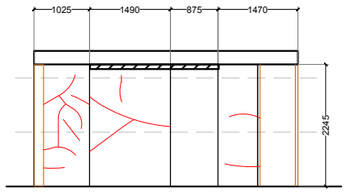
GF9(G)_E3



GF9(L)_E1



GF9(L)_E2



GF9(L)_E3

PREVIOUS INTERVENTION ON WASH BASIN AND FLOORING TILES

CRACKS & STAINS ON THE WALLS & FLOOR

CRACKS IN WHITE TERRAZZO FINISH WALL

STAINS ON THE WALL SURFACE

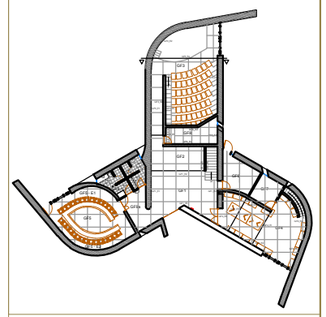
DAMAGED ELECTRICAL FIXTURES

PREVIOUS INTERVENTION ON TOILET FIXTURES

PREVIOUS INTERVENTION WITH CEMENT ON WALL

NOTES:

1. Pest control to be carried out for all interior wall surfaces
2. Electrical conduits (to remain?)
3. Remove all unused nails and patch the holes
4. Extrinsic deposits to be removed during next painting and maintenance cycle
5. All the plaster defects to be monitored.
6. Cracks to be monitored



KEY PLAN

DRAWING SCALE: 1:100

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	

DRAWING NAME:
INTERIOR ELEVATIONS

DRAWING NUMBER: GB/CM/INT/E-05

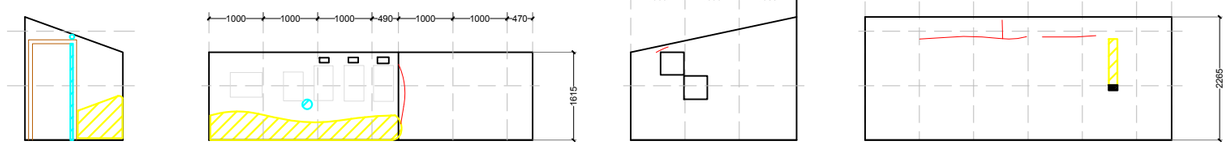
SERIES: CONDITION MAPPING DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

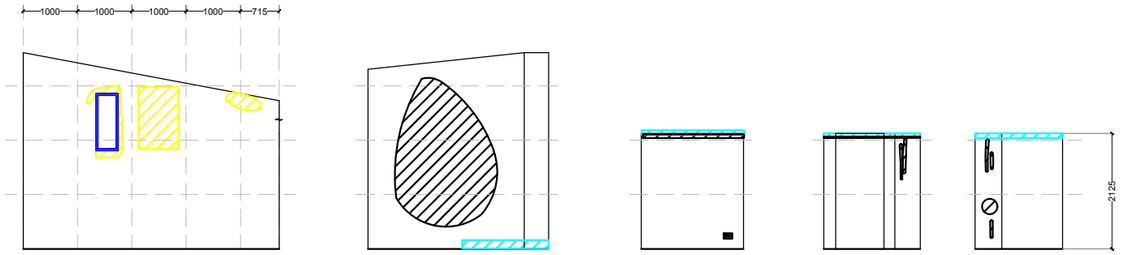
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

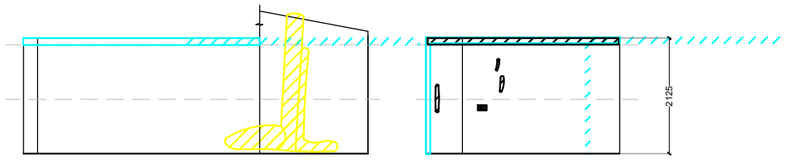
A-258, SOUTH CITY -1
GURGAON-122001



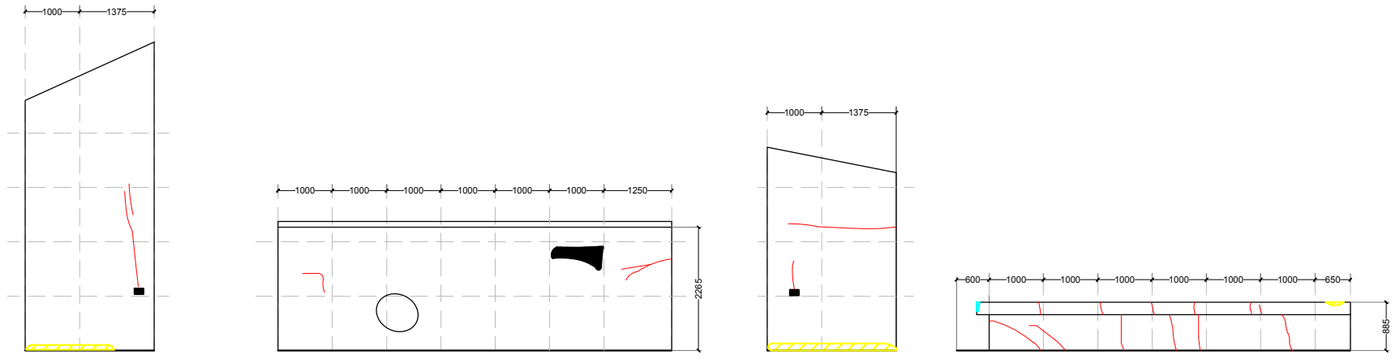
GF8_E1 GF8_E2 GF8_E3 GF8_E4



MF4_E1 MF4_E2 MF4_E3 MF4_E4 MF4_E5



MF3_E1 MF3_E2



MF2_E1 MF2_E2 MF2_E3 MF2_E4

MATERIAL LOSS (GF8)

MATERIAL LOSS ON THE WALL EDGE

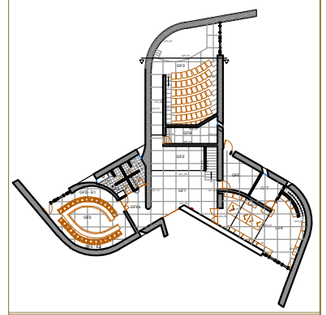
LOSS OF EDGE OF THE WALL

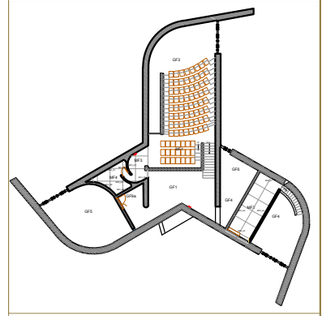
DEPOSIT ON THE DOOR

DEPOSIT ON THE WALL

NOTES:

1. Pest control to be carried out for all interior wall surfaces
2. Electrical conduits (to remain?)
3. Remove all unused nails and patch the holes
4. Extrinsic deposits to be removed during next painting and maintenance cycle
5. All the plaster defects to be monitored.
6. Cracks to be monitored





KEY PLAN

DRAWING SCALE: 1:100

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	

DRAWING NAME:
INTERIOR ELEVATIONS

DRAWING NUMBER: GB/CM/INT/E-06

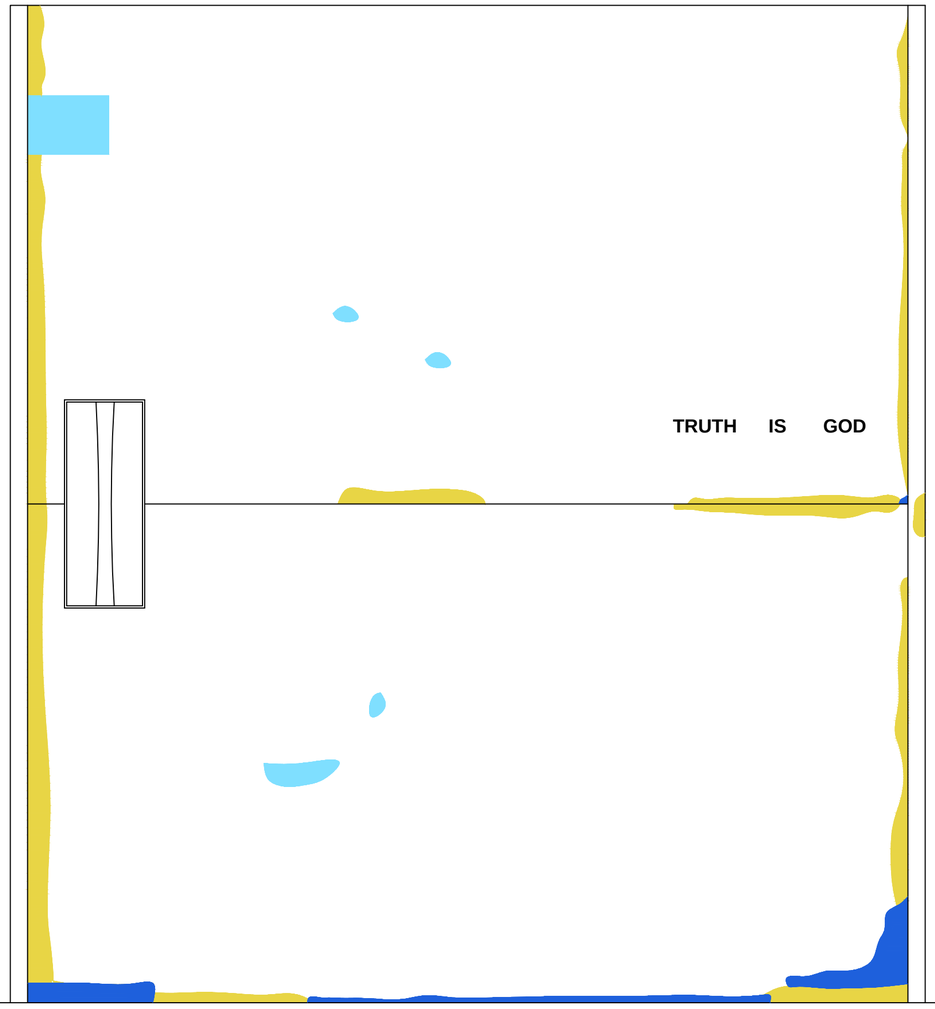
SERIES: CONDITION MAPPING DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

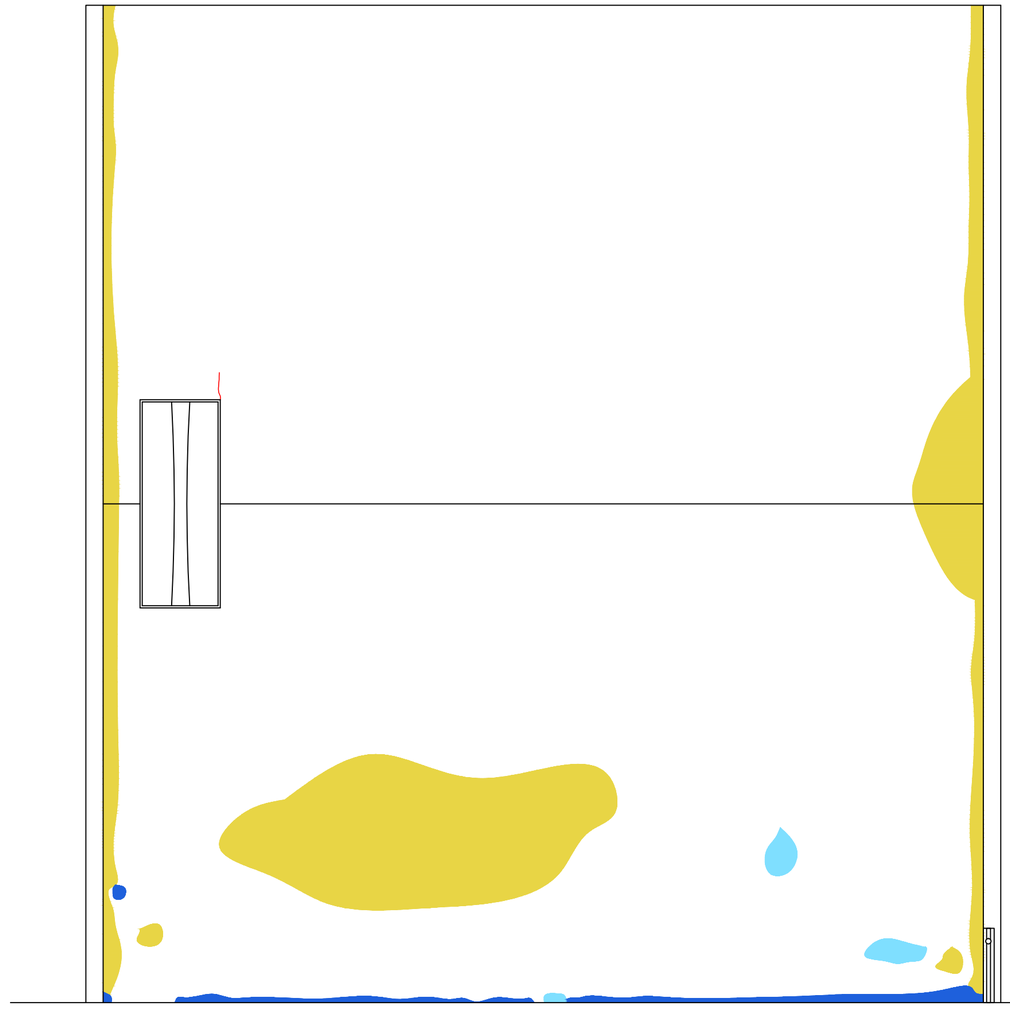
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



OUTSIDE ELEVATION



INSIDE ELEVATION

DOOR WINDOW SCHEDULE (H x W)	
D	2300 x 2110mm
D1	2280 x 1770mm
D2	2235 x 905mm
D3	2300 x 905mm
D4	2385 x 915mm
D5	1860 x 885mm
D6	2260 x 1355mm
D7	2260 x 915mm
D8	2120 x 755mm
D9	2240 x 1080mm
D10	2065 x 755mm
W1	3530 x 2500mm (L1)
W2	3605 x 2585mm (L1)
W3	2515 x 2480mm (L1)
W4	2180 x 700mm
W5	430 x 430mm
W6	430 x 430mm
W7	1150 x 410mm
W8	565 x 410mm
W9	225mm wide
S1	(130) (715) x 410mm
S2	(120) (520) x 445mm

REPAIR WORK ON TOP LEFT CORNER

LOOSE HANDLE ON THE INNER FACE

OUTSIDE FACE OF DOOR

INSIDE FACE OF DOOR

LEGEND:

- Loss of material
- Cracks
- Joint openings
- Uneven surface
- Nails
- Termite Loss
- Repair / New Additions

KEY PLAN

NOTE: The wood ply is effected due to weather changes & cdaily usage of the door.

DRAWING SCALE: 1:10

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	03.07.2016

DRAWING NAME:
DOOR & WINDOW CONDITION ASSESSMENT
DOOR TYPE - D

DRAWING NUMBER: GB/CM/DW-01

SERIES: CONDITION MAPPING DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

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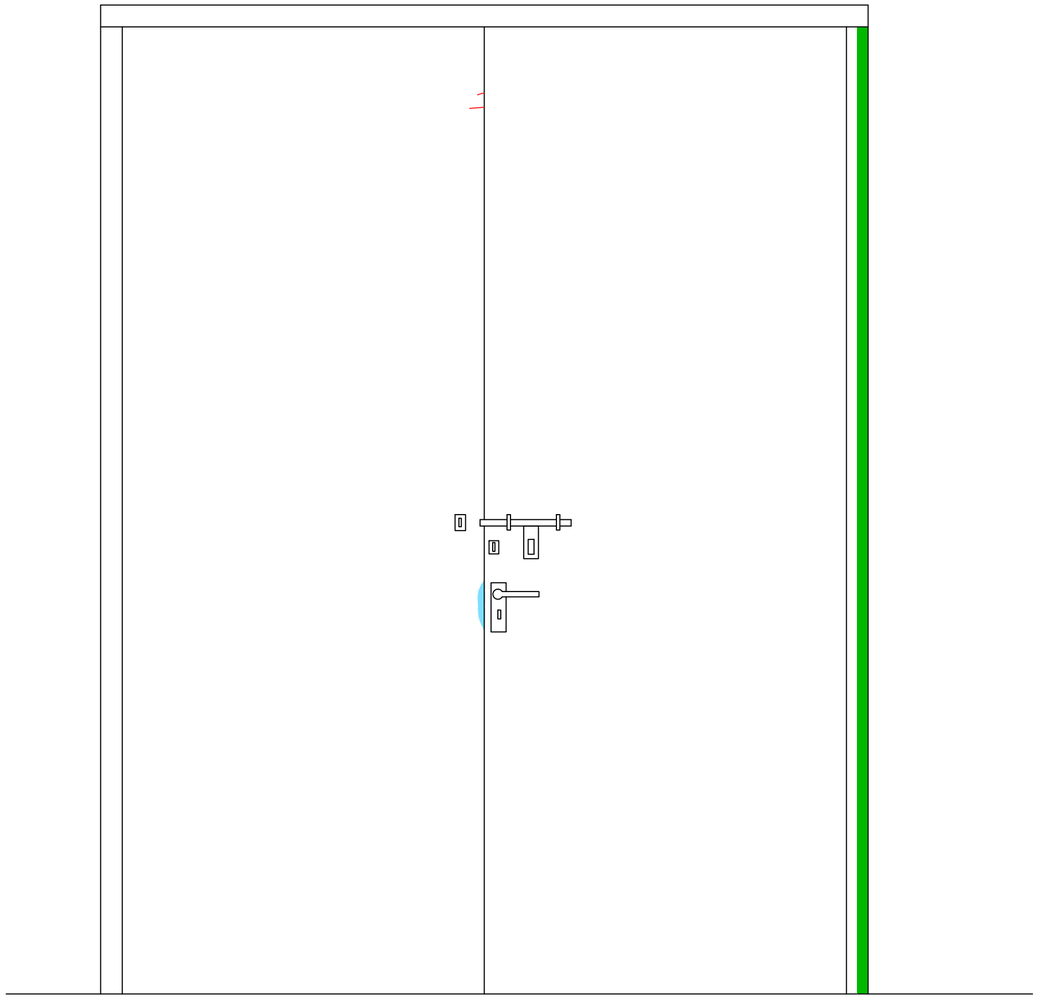
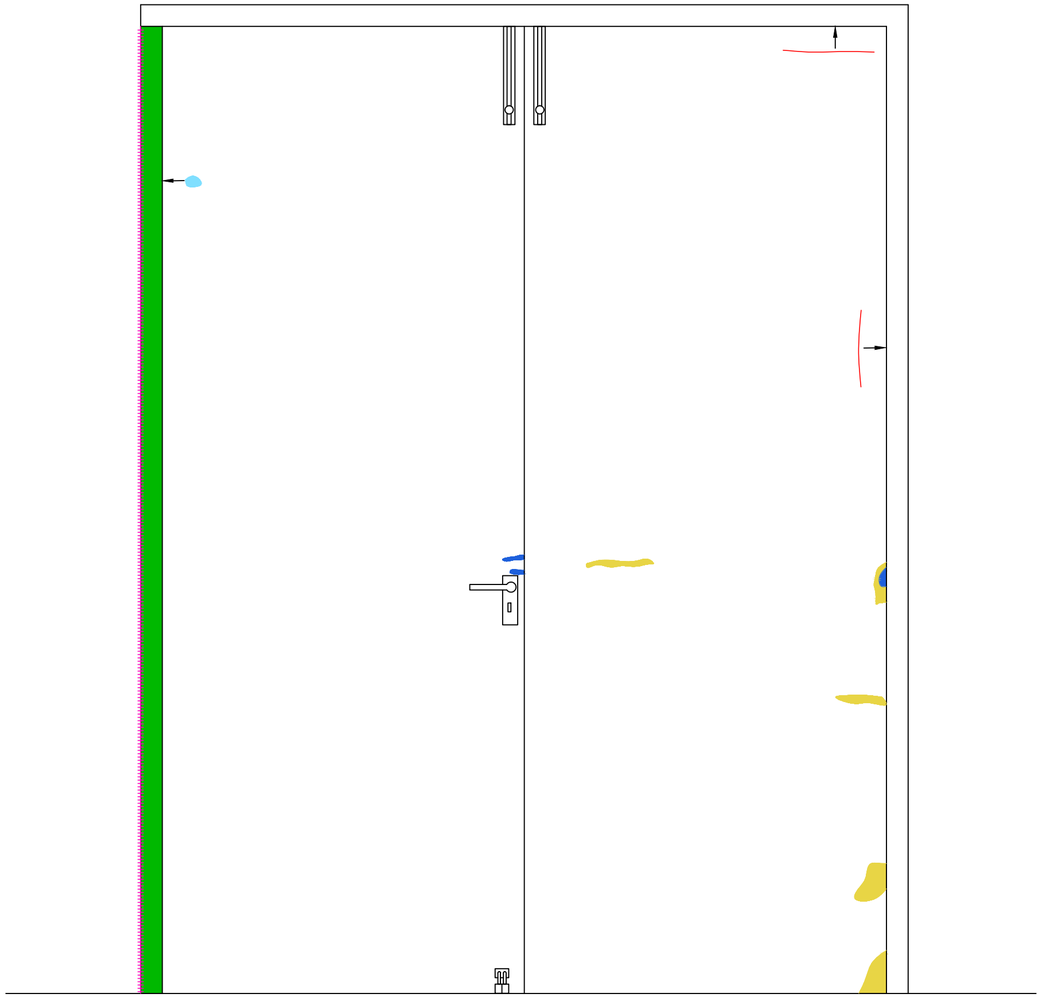


OUTSIDE ELEVATION



INSIDE ELEVATION

DOOR WINDOW SCHEDULE (H x W)	
D	2300 x 2110mm
D1	2280 x 1770mm
D2	2235 x 905mm
D3	2300 x 905mm
D4	2385 x 915mm
D5	1860 x 885mm
D6	2260 x 1355mm
D7	2260 x 915mm
D8	2120 x 755mm
D9	2240 x 1080mm
D10	2065 x 755mm
W1	3530 x 2500mm (L1)
W2	3605 x 2585mm (L1)
W3	2515 x 2480mm (L1)
W4	2180 x 700mm
W5	430 x 430mm
W6	430 x 430mm
W7	1150 x 410mm
W8	565 x 410mm
W9	225mm wide
S1	(130) (715) x 410mm
S2	(120) (520) x 445mm

REPAIR WORK ON TOP LEFT CORNER

MATERIAL LOSS IN BOTTOM EDGE

OUTSIDE FACE OF DOOR

INSIDE FACE OF DOOR

LEGEND:

- Loss of material
- Cracks
- Joint openings
- Uneven surface
- Nails
- Termite Loss
- Repair / New Additions

KEY PLAN

NOTE: The door frames are severely damaged & disintegrated by termite.

DRAWING SCALE: 1:10

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	04.07.2016

DRAWING NAME:
DOOR & WINDOW CONDITION ASSESSMENT
DOOR TYPE - D1

DRAWING NUMBER: GB/CM/DW-02

SERIES: CONDITION MAPPING DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
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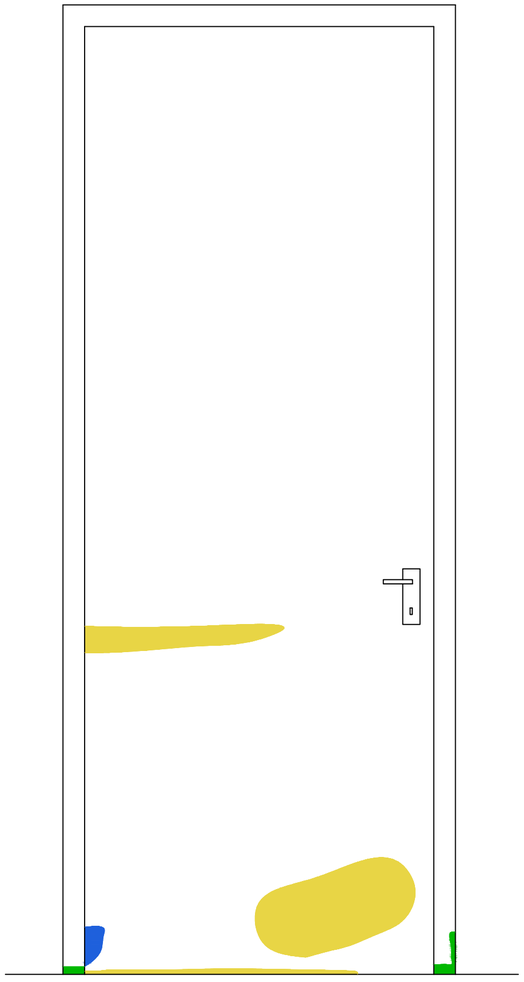
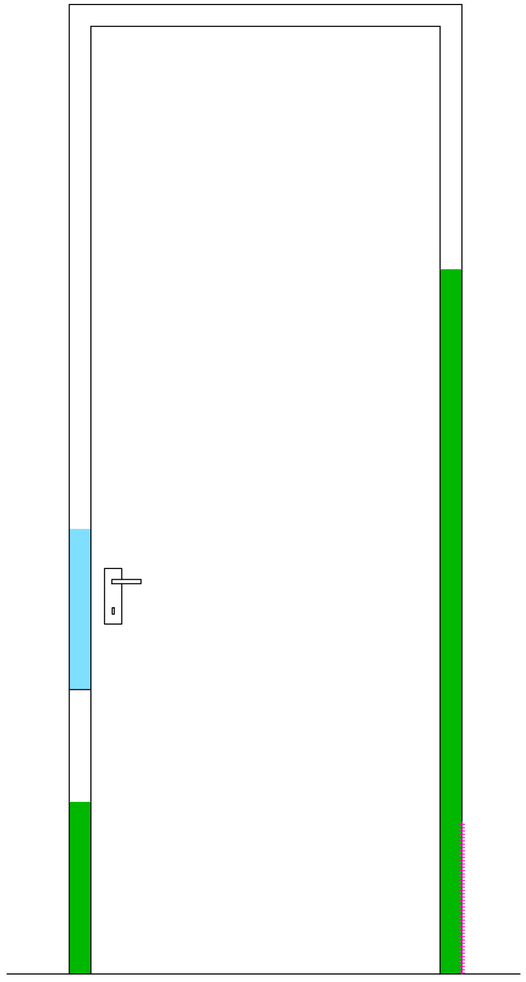


OUTSIDE ELEVATION



INSIDE ELEVATION

KEY IMAGE (OUTSIDE FACE)

KEY IMAGE (INSIDE FACE)

DOOR WINDOW SCHEDULE (H x W)	
D	2300 x 2110mm
D1	2280 x 1770mm
D2	2235 x 905mm
D3	2300 x 905mm
D4	2385 x 915mm
D5	1860 x 885mm
D6	2260 x 1355mm
D7	2260 x 915mm
D8	2120 x 755mm
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W1	3530 x 2500mm (L1)
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W4	2180 x 700mm
W5	430 x 430mm
W6	430 x 430mm
W7	1150 x 410mm
W8	565 x 410mm
W9	225mm wide
S1	(130) (715) x 410mm
S2	(120) (520) x 445mm

MATERIAL LOSS AND SURFACE ABRASION

TERMITE COMING OUT OF THE GROUND

DISINTEGRATED DOOR FRAME DUE TO TERMITE

WOOD PIECE ADDED TO REPAIR

LEGEND:

- Loss of material
- Cracks
- Joint openings
- Uneven surface
- Nails
- Termite Loss
- Repair / New Additions

KEY PLAN

NOTE: The door frames are severely damaged & disintegrated by termite.

DRAWING SCALE: 1:10

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	04.07.2016

DRAWING NAME:
DOOR & WINDOW CONDITION ASSESSMENT
DOOR TYPE - D2

DRAWING NUMBER: GB/CM/DW-03

SERIES: CONDITION MAPPING DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

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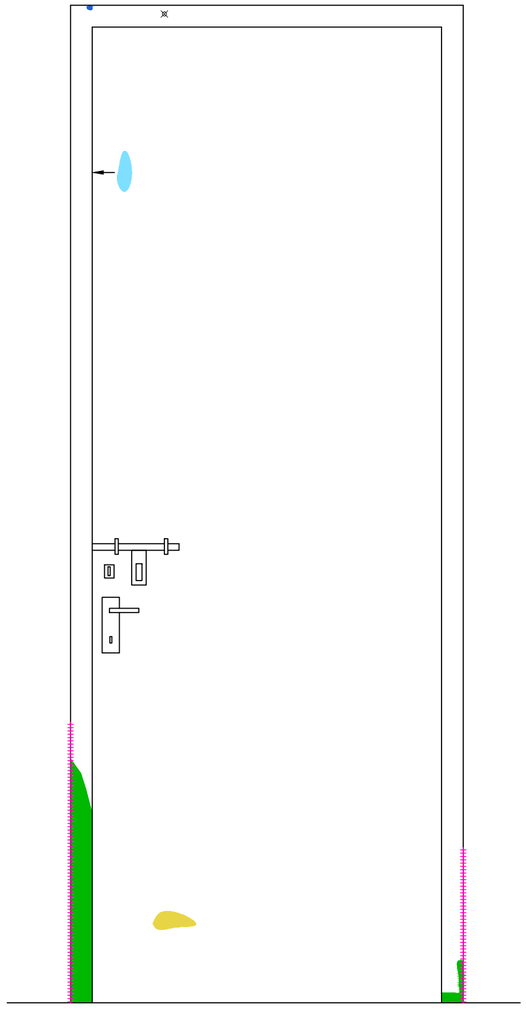
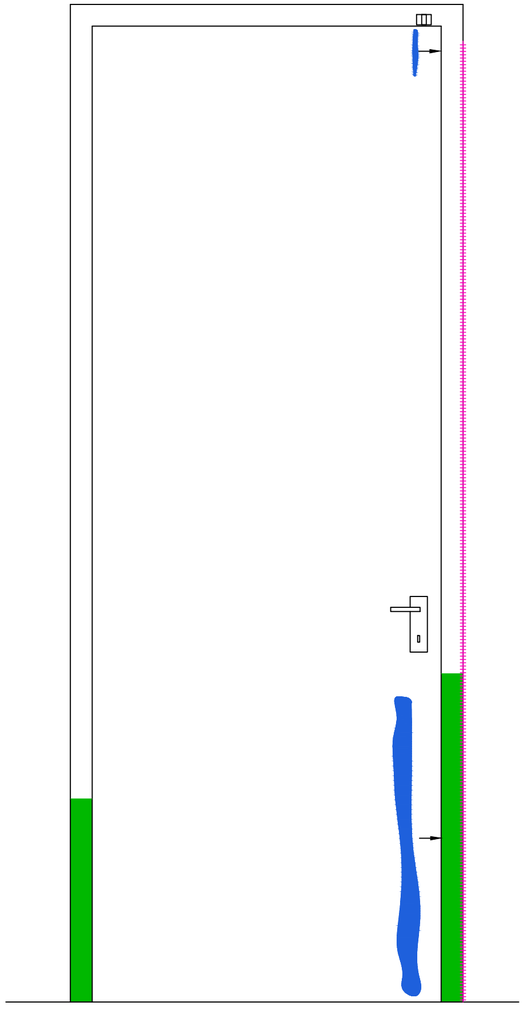
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT



OUTSIDE ELEVATION



INSIDE ELEVATION

KEY IMAGE (OUTSIDE FACE)

KEY IMAGE (INSIDE FACE)

DOOR WINDOW SCHEDULE (H x W)	
D	2300 x 2110mm
D1	2280 x 1770mm
D2	2235 x 905mm
D3	2300 x 905mm
D4	2385 x 915mm
D5	1860 x 885mm
D6	2260 x 1355mm
D7	2260 x 915mm
D8	2120 x 755mm
D9	2240 x 1080mm
D10	2065 x 755mm
W1	3530 x 2500mm (L1)
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W4	2180 x 700mm
W5	430 x 430mm
W6	430 x 430mm
W7	1150 x 410mm
W8	565 x 410mm
W9	225mm wide
S1	(130) (715) x 410mm
S2	(120) (520) x 445mm

KEY PLAN

NOTE: The door frames are severely damaged & disintegrated by termite.

DRAWING SCALE: 1:10 (0 20 50 100 150 mm.)

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	04.07.2016

DRAWING NAME:
DOOR & WINDOW CONDITION ASSESSMENT
DOOR TYPE - D3

DRAWING NUMBER: GB/CM/DW-04

SERIES: CONDITION MAPPING DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001

DOOR FRAME DETATCHED FROM WALL

TERMITE COMING OUT OF THE GROUND

DISINTEGRATED DOOR FRAME DUE TO TERMITE

DAMAGED PORTION DUE TO TERMITE

LEGEND:

- Loss of material
- Cracks
- Joint openings
- Uneven surface
- Nails
- Termite Loss
- Repair / New Additions

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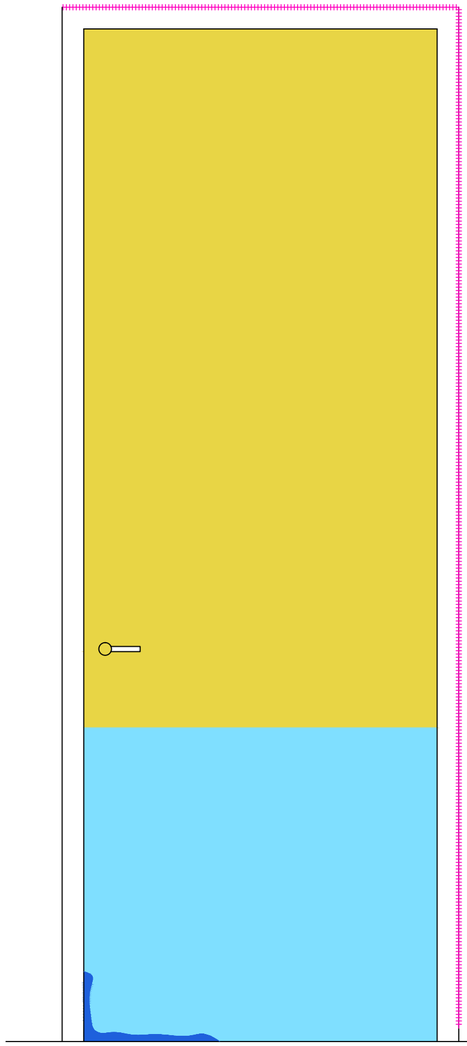
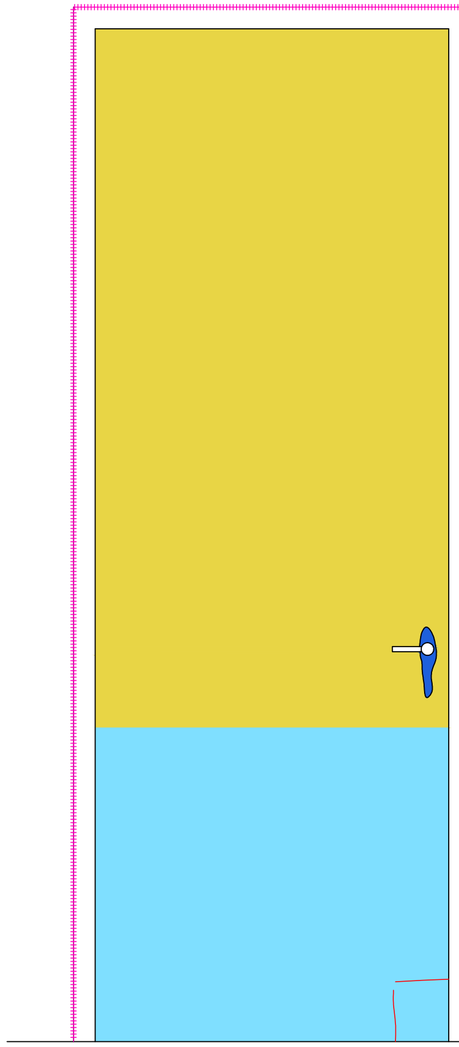
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT



OUTSIDE ELEVATION



INSIDE ELEVATION

KEY IMAGE (OUTSIDE FACE)

KEY IMAGE (INSIDE FACE)

DOOR WINDOW SCHEDULE (H x W)	
D	2300 x 2110mm
D1	2280 x 1770mm
D2	2235 x 905mm
D3	2300 x 905mm
D4	2385 x 915mm
D5	1860 x 885mm
D6	2260 x 1355mm
D7	2260 x 915mm
D8	2120 x 755mm
D9	2240 x 1080mm
D10	2065 x 755mm
W1	3530 x 2500mm (L1)
W2	3605 x 2585mm (L1)
W3	2515 x 2480mm (L1)
W4	2180 x 700mm
W5	430 x 430mm
W6	430 x 430mm
W7	1150 x 410mm
W8	565 x 410mm
W9	225mm wide
S1	(130) (715) x 410mm
S2	(120) (520) x 445mm

KEY PLAN

NOTE: The exterior door wood ply affected due to weathering & metal frame detached from the wall.

DRAWING SCALE: 1:10 (0 20 50 100 150 mm.)

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	04.07.2016

DRAWING NAME:
DOOR & WINDOW CONDITION ASSESSMENT
DOOR TYPE - D4

DRAWING NUMBER: GB/CM/DW-05

SERIES: CONDITION MAPPING DRAWINGS

PROJECT:

CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

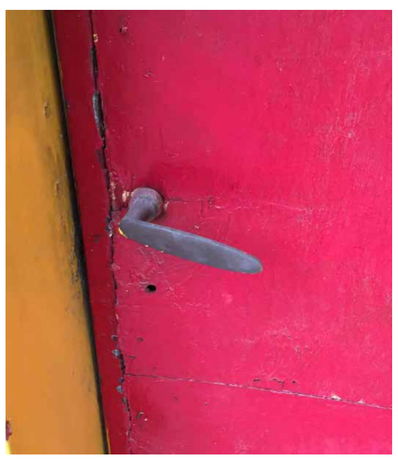
CLIENT:

PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



CRACKED PLY DUE TO RUSTY DOOR LOCK

WARPING WOOD PLY

REPAIRED BOTTOM SECTION OF THE DOOR

DOOR FRAME DETACHED FROM LINTEL

LEGEND:

- Loss of material
- Cracks
- Joint openings
- Uneven surface
- Nails
- Termite Loss
- Repair / New Additions

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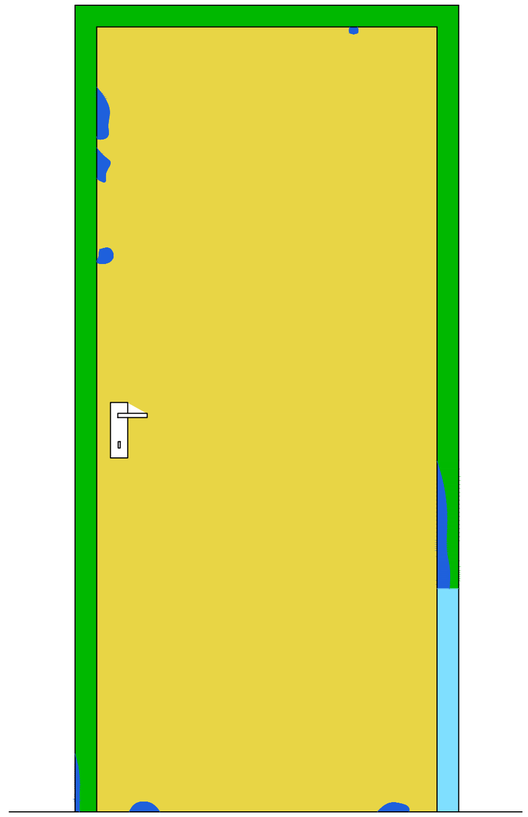
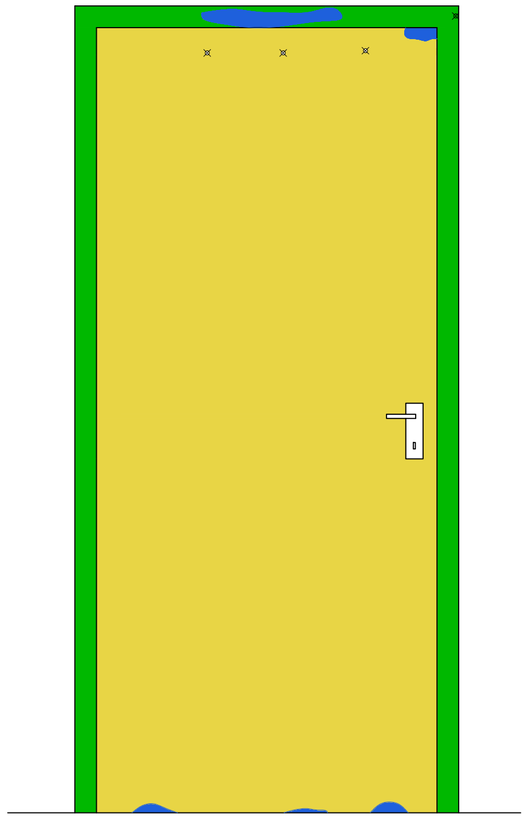
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT



OUTSIDE ELEVATION

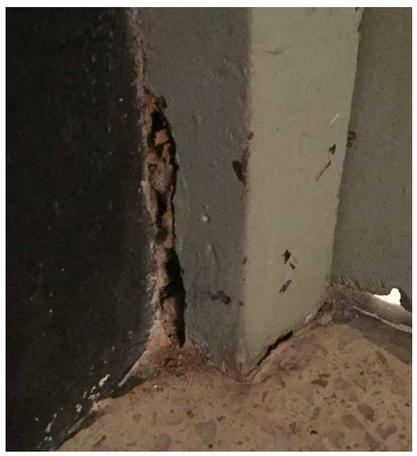


INSIDE ELEVATION

KEY IMAGE (OUTSIDE FACE)

KEY IMAGE (INSIDE FACE)

WOOD PIECE ADDED TO REPAIR



TERMITE INSIDE THE DOOR FRAME

TERMITE INSIDE THE DOOR FRAME

MATERIAL LOSS DUE TO TERMITE

DOOR WINDOW SCHEDULE (H x W)	
D	2300 x 2110mm
D1	2280 x 1770mm
D2	2235 x 905mm
D3	2300 x 905mm
D4	2385 x 915mm
D5	1860 x 885mm
D6	2260 x 1355mm
D7	2260 x 915mm
D8	2120 x 755mm
D9	2240 x 1080mm
D10	2065 x 755mm
W1	3530 x 2500mm (L1)
W2	3605 x 2585mm (L1)
W3	2515 x 2480mm (L1)
W4	2180 x 700mm
W5	430 x 430mm
W6	430 x 430mm
W7	1150 x 410mm
W8	565 x 410mm
W9	225mm wide
S1	(130) (715) x 410mm
S2	(120) (520) x 445mm

KEY PLAN

NOTE: The door frames are severely damaged & disintegrated by termite.

DRAWING SCALE: 1:10

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	04.07.2016

DRAWING NAME:
DOOR & WINDOW CONDITION ASSESSMENT
DOOR TYPE - D5

DRAWING NUMBER: GB/CM/DW-06

SERIES: CONDITION MAPPING DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001

LEGEND:

- Loss of material
- Cracks
- Joint openings
- Uneven surface
- Nails
- Termite Loss
- Repair / New Additions

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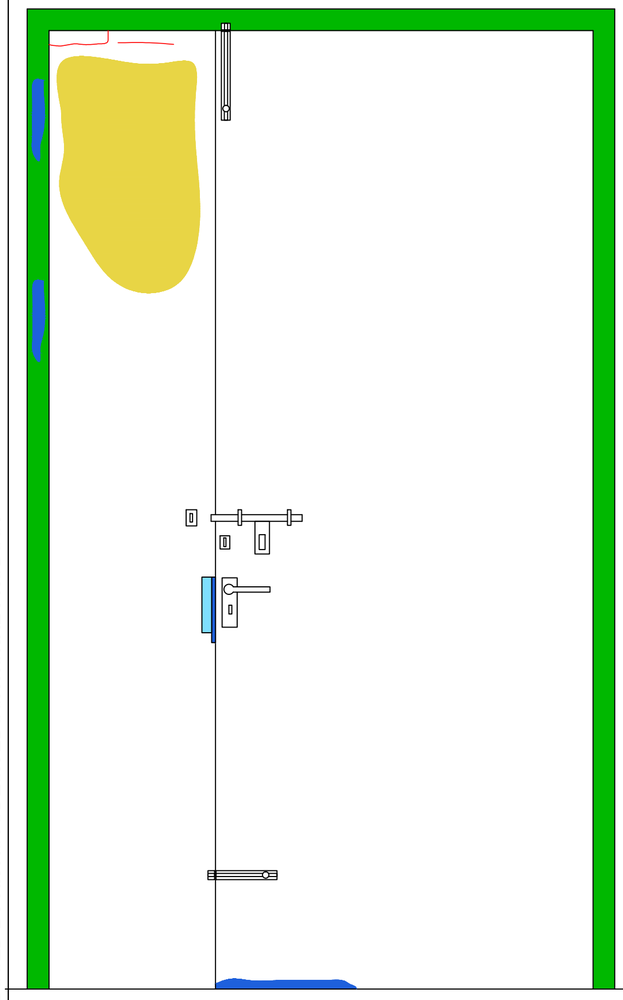
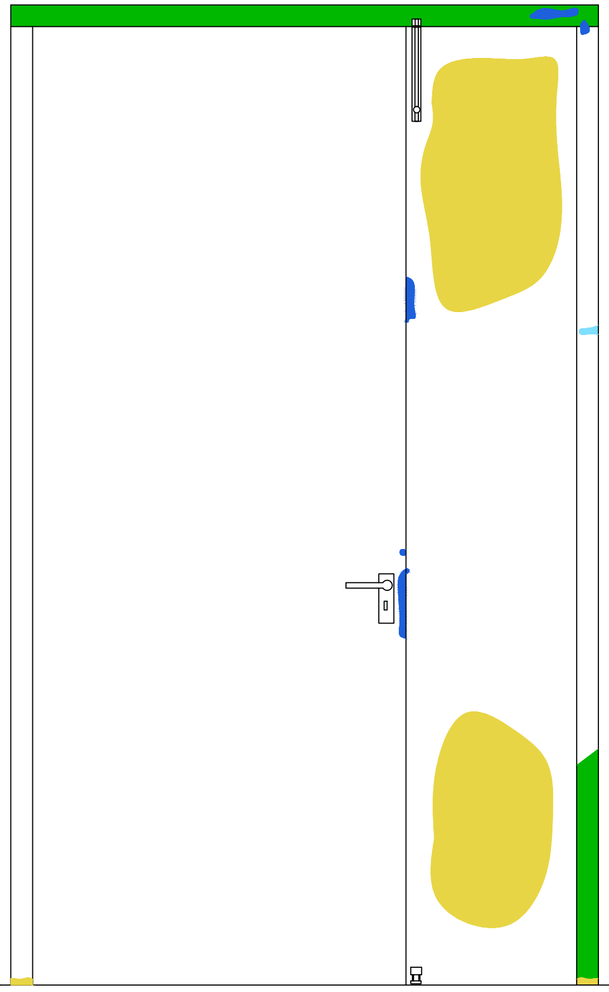
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT



OUTSIDE ELEVATION



INSIDE ELEVATION

KEY IMAGE (OUTSIDE FACE)

KEY IMAGE (INSIDE FACE)

DOOR WINDOW SCHEDULE (H x W)	
D	2300 x 2110mm
D1	2280 x 1770mm
D2	2235 x 905mm
D3	2300 x 905mm
D4	2385 x 915mm
D5	1860 x 885mm
D6	2260 x 1355mm
D7	2260 x 915mm
D8	2120 x 755mm
D9	2240 x 1080mm
D10	2065 x 755mm
W1	3530 x 2500mm (L1)
W2	3605 x 2585mm (L1)
W3	2515 x 2480mm (L1)
W4	2180 x 700mm
W5	430 x 430mm
W6	430 x 430mm
W7	1150 x 410mm
W8	565 x 410mm
W9	225mm wide
S1	(130) (715) x 410mm
S2	(120) (520) x 445mm

KEY PLAN

NOTE: The door frames are severely damaged & disintegrated by termite.

DRAWING SCALE: 1:10

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	04.07.2016

DRAWING NAME:
DOOR & WINDOW CONDITION ASSESSMENT
DOOR TYPE - D6

DRAWING NUMBER: GB/CM/DW-07

SERIES: CONDITION MAPPING DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

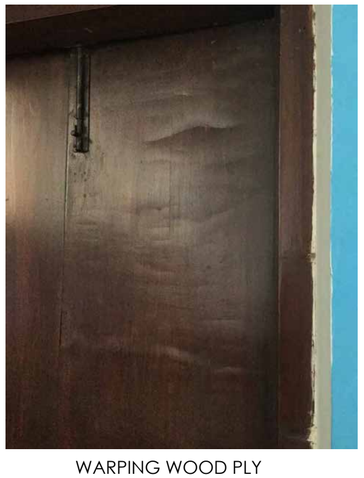
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001

MATERIAL LOSS DUE TO TERMITE

TERMITE ENTERING THE DOOR



WARPING WOOD PLY

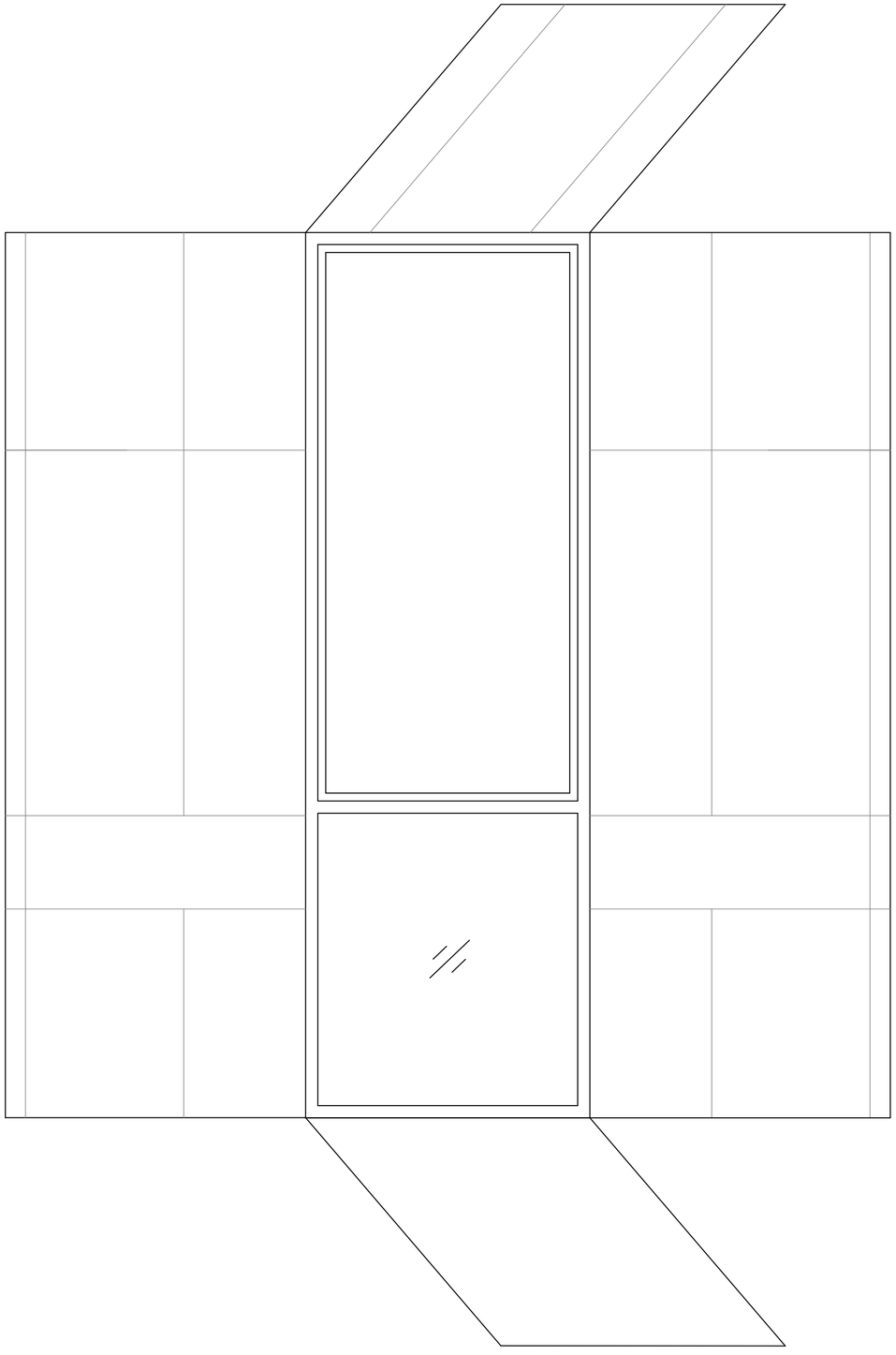
DAMAGED PORTION DUE TO TERMITE

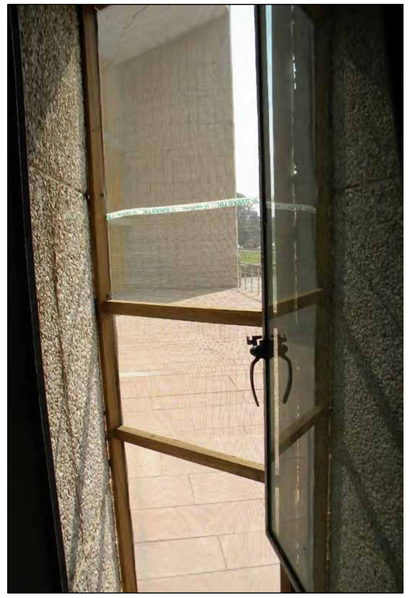
LEGEND:

- Loss of material
- Cracks
- Joint openings
- Uneven surface
- Nails
- Termite Loss
- Repair / New Additions

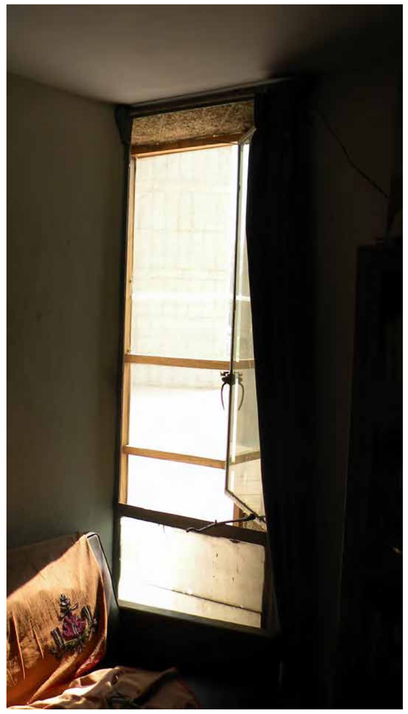
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT





WIRE MESH FRAME INSTALLED ON THE OUTER SIDE



KEY IMAGE

DOOR WINDOW SCHEDULE (H x W)	
D	2300 x 2110mm
D1	2280 x 1770mm
D2	2235 x 905mm
D3	2300 x 905mm
D4	2385 x 915mm
D5	1860 x 885mm
D6	2260 x 1355mm
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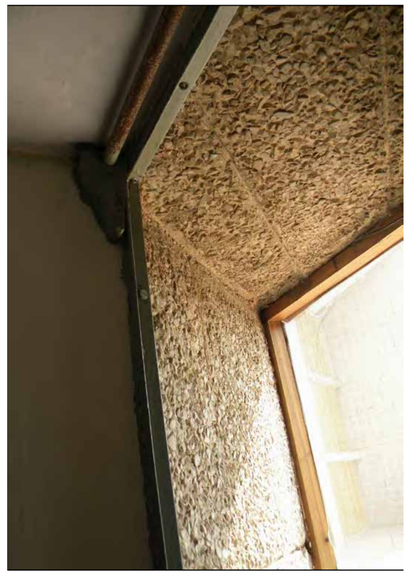
W4	2180 x 700mm
W5	430 x 430mm
W6	430 x 430mm
W7	1150 x 410mm
W8	565 x 410mm
W9	225mm wide
S1	(130) (715) x 410mm
S2	(120) (520) x 445mm



CURTAIN ROD ADDED LATER

LEGEND:

Loss of material	
Cracks	
Joint openings	
Uneven surface	
Nails	
Termite Loss	
Repair / New Additions	

KEY PLAN

NOTE: The glass is stained with dirt & paint spatter, Metal frame has uneven finish due to excessive paint layers.

DRAWING SCALE: 1:10 0 30 50 100 150 mm.

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	04.07.2016

DRAWING NAME:
DOOR & WINDOW CONDITION ASSESSMENT
WINDOW TYPE - W4

DRAWING NUMBER: GB/CM/DW-14

SERIES: CONDITION MAPPING DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001

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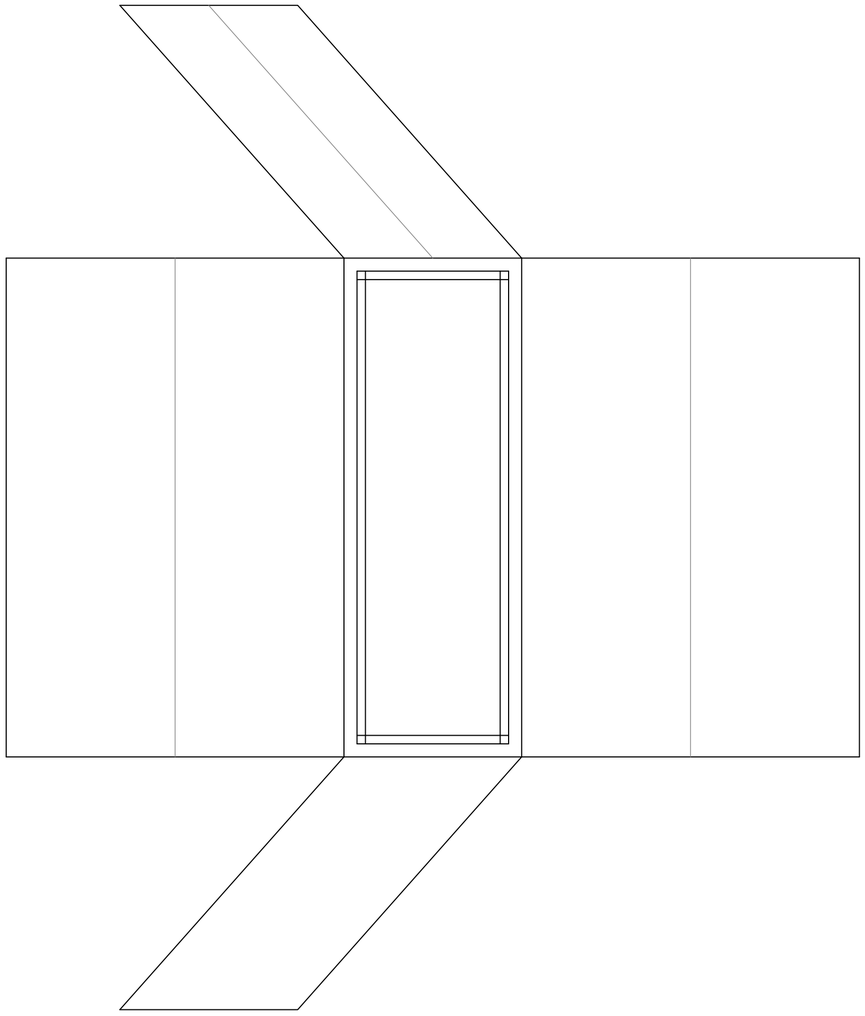
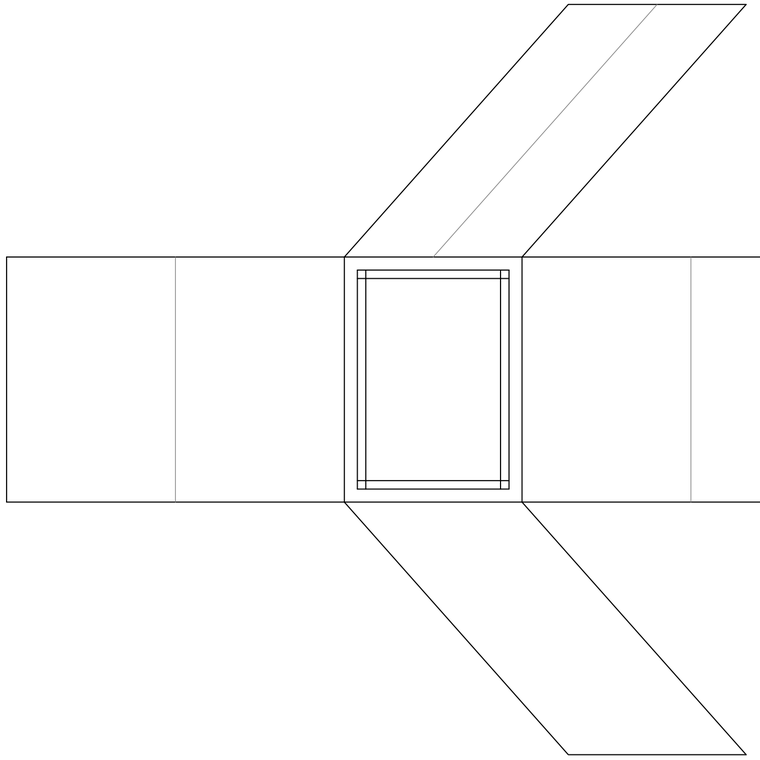
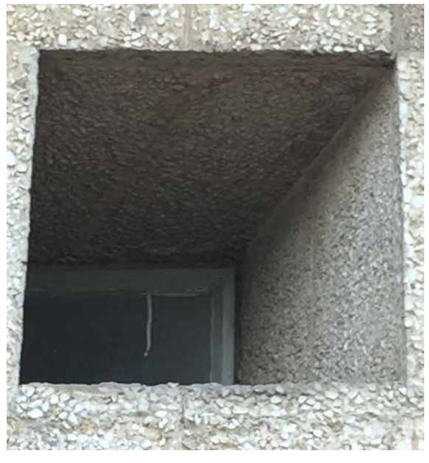
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT



EXPLODED ELEVATION OF W5



EXPLODED ELEVATION OF W6



LEGEND:

Loss of material	
Cracks	
Joint openings	
Uneven surface	
Nails	
Termite Loss	
Repair / New Additions	

DOOR WINDOW SCHEDULE (H x W)	
D	2300 x 2110mm
D1	2280 x 1770mm
D2	2235 x 905mm
D3	2300 x 905mm
D4	2385 x 915mm
D5	1860 x 885mm
D6	2260 x 1355mm
D7	2260 x 915mm
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D9	2240 x 1080mm
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W3	2515 x 2480mm (L1)
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W5	430 x 430mm
W6	430 x 430mm
W7	1150 x 410mm
W8	565 x 410mm
W9	225mm wide
S1	(130) (715) x 410mm
S2	(120) (520) x 445mm

KEY PLAN

NOTE: The glass is stained with dirt & paint spatter, Metal frame has uneven finish due to excessive paint layers.

DRAWING SCALE: 1:10 0 20 50 100 150 mm.

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	04.07.2016

DRAWING NAME:
DOOR & WINDOW CONDITION ASSESSMENT
WINDOW TYPE - W7 & W8

DRAWING NUMBER: GB/CM/DW-16

SERIES: CONDITION MAPPING DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

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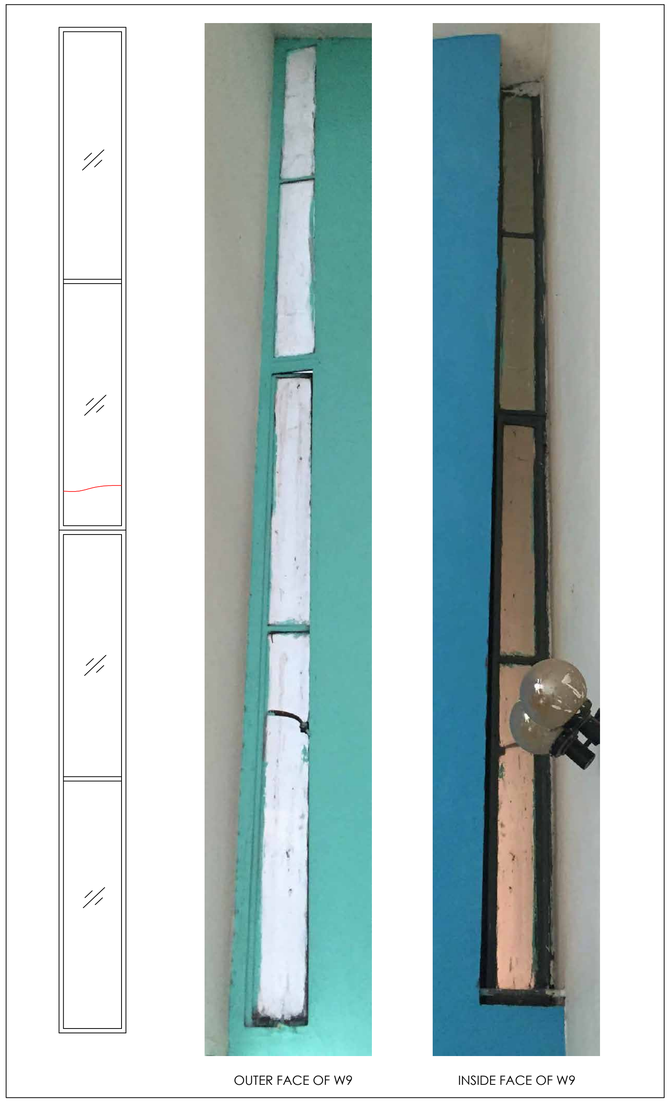
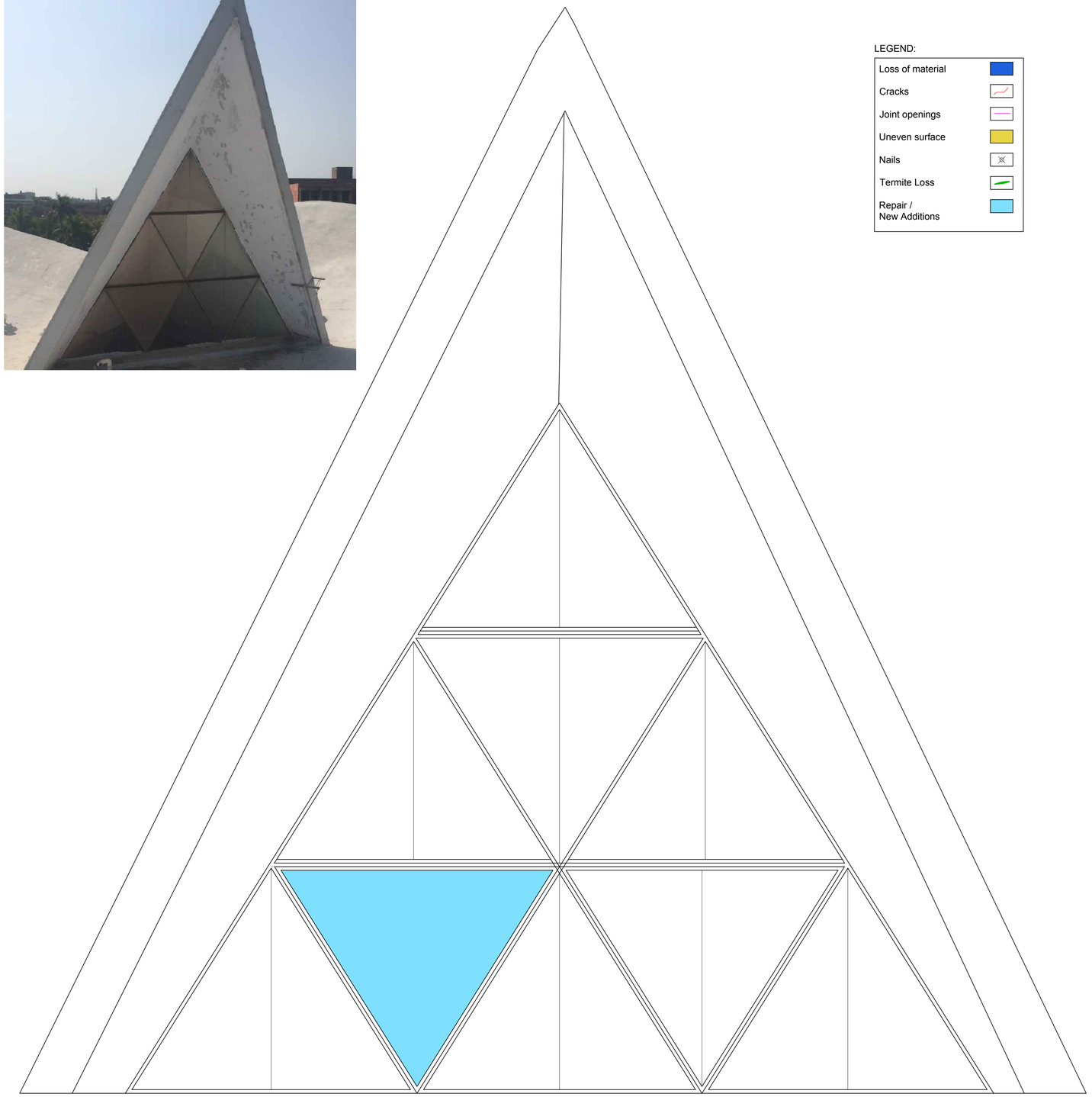
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT



OUTER FACE OF W9

INSIDE FACE OF W9



OUTSIDE ELEVATION OF SKYLIGHT

LEGEND:

Loss of material
Cracks
Joint openings
Uneven surface
Nails
Termite Loss
Repair / New Additions

DOOR WINDOW SCHEDULE (H x W)	
D	2300 x 2110mm
D1	2280 x 1770mm
D2	2235 x 905mm
D3	2300 x 905mm
D4	2385 x 915mm
D5	1860 x 885mm
D6	2260 x 1355mm
D7	2260 x 915mm
D8	2120 x 755mm
D9	2240 x 1080mm
D10	2065 x 755mm
W1	3530 x 2500mm (L1)
W2	3605 x 2585mm (L1)
W3	2515 x 2480mm (L1)
W4	2180 x 700mm
W5	430 x 430mm
W6	430 x 430mm
W7	1150 x 410mm
W8	565 x 410mm
W9	225mm wide
S1	(130) (715) x 410mm
S2	(120) (520) x 445mm

KEY PLAN

NOTE: The glass is stained with dirt & paint spatter, Metal frame has uneven finish due to excessive paint layers.

DRAWING SCALE: 1:16

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	04.07.2016

DRAWING NAME:
DOOR & WINDOW CONDITION ASSESSMENT
WINDOW TYPE - W9 & SKYLIGHT

DRAWING NUMBER: GB/CM/DW-17

SERIES: CONDITION MAPPING DRAWINGS

PROJECT:

CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

CLIENT:

PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

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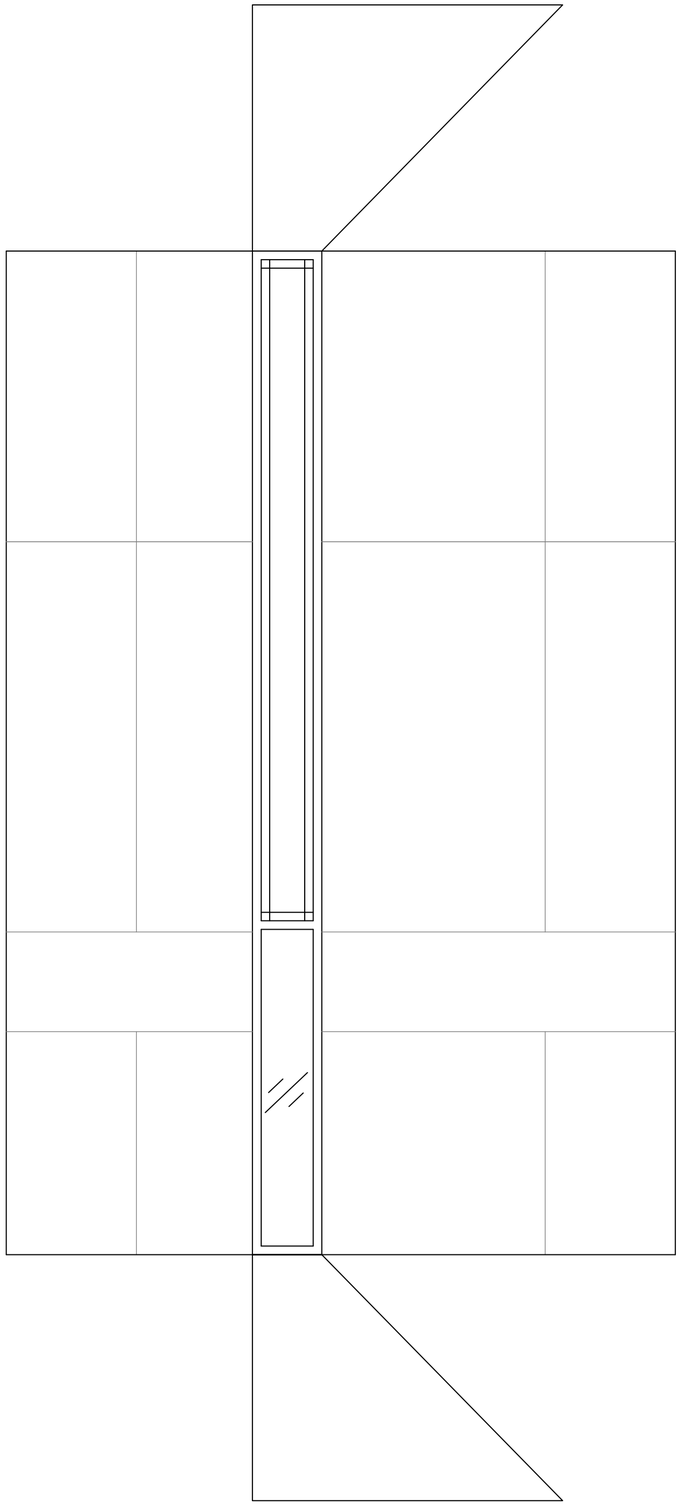
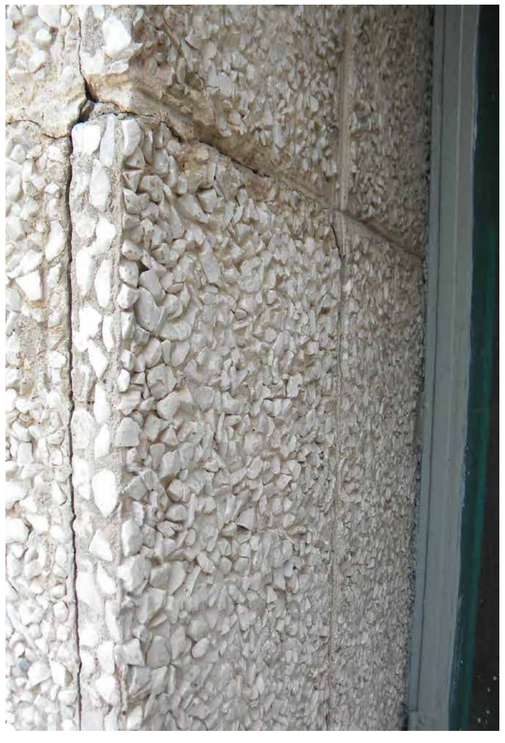
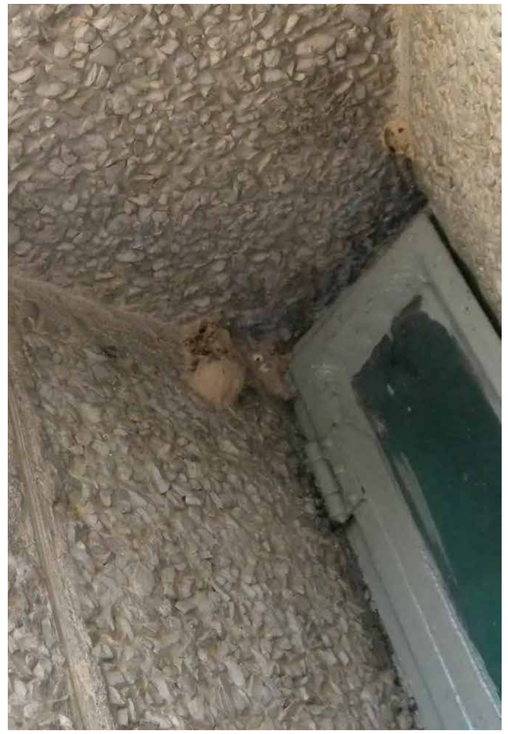


EXPLODED ELEVATION OF S1

OUTER FACE OF S1



DETATCHMENT OF PANEL



MUD DAUBER GROWTH ON SURFACE

DOOR WINDOW SCHEDULE (H x W)	
D	2300 x 2110mm
D1	2280 x 1770mm
D2	2235 x 905mm
D3	2300 x 905mm
D4	2385 x 915mm
D5	1860 x 885mm
D6	2260 x 1355mm
D7	2260 x 915mm
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D9	2240 x 1080mm
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W7	1150 x 410mm
W8	565 x 410mm
W9	225mm wide
S1	(130) (715) x 410mm
S2	(120) (520) x 445mm

LEGEND:

- Loss of material
- Cracks
- Joint openings
- Uneven surface
- Nails
- Termite Loss
- Repair / New Additions

KEY PLAN

NOTE: The glass is stained with dirt & paint spatter, Metal frame has uneven finish due to excessive paint layers.

DRAWING SCALE: 1:10 (0 20 60 100 150 mm.)

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	04.07.2016

DRAWING NAME:
DOOR & WINDOW CONDITION ASSESSMENT
WINDOW TYPE - S1

DRAWING NUMBER: GB/CM/DW-18

SERIES: CONDITION MAPPING DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
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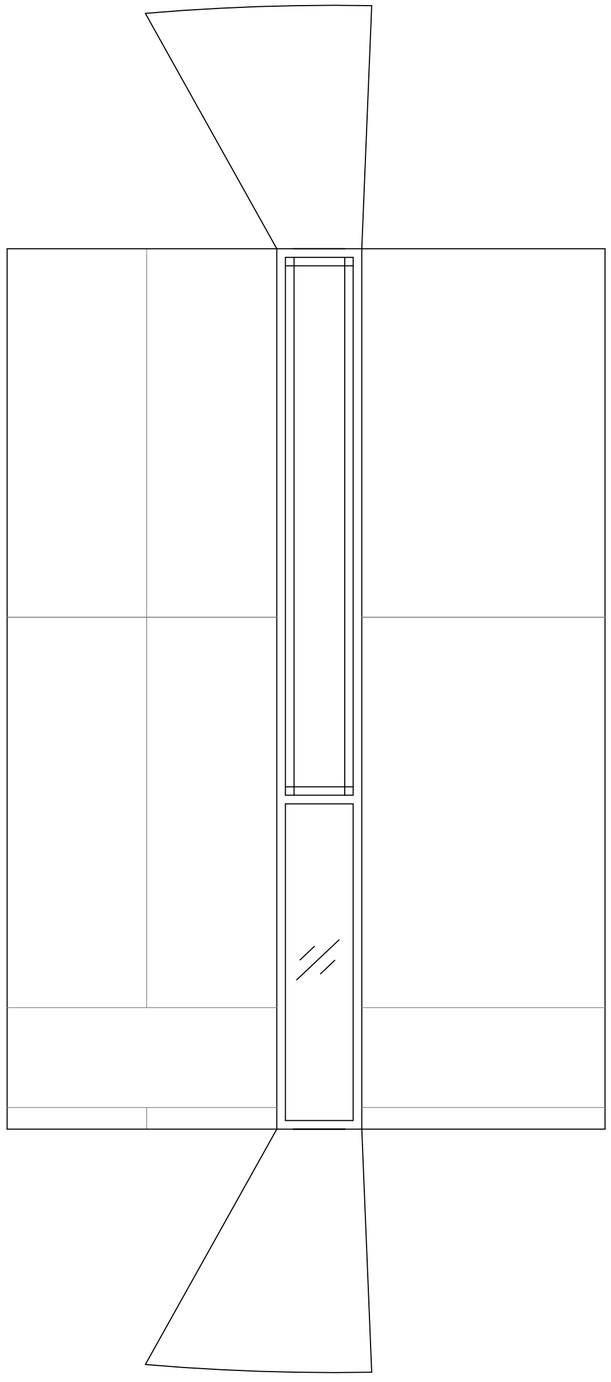
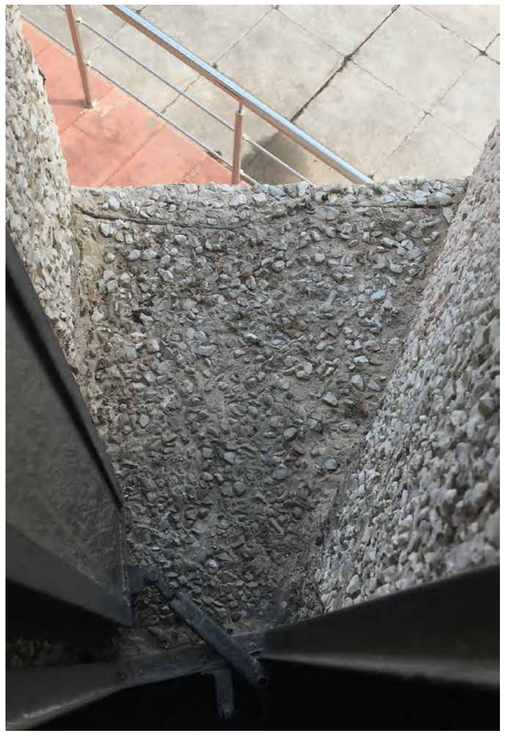
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT



EXPLODED ELEVATION OF S2

OUTER FACE OF S1



EXPOSED RE-BARS IN PANEL

BEE HIVE GROWTH ON SURFACE

LEGEND:

Loss of material	
Cracks	
Joint openings	
Uneven surface	
Nails	
Termite Loss	
Repair / New Additions	

DOOR WINDOW SCHEDULE (H x W)	
D	2300 x 2110mm
D1	2280 x 1770mm
D2	2235 x 905mm
D3	2300 x 905mm
D4	2385 x 915mm
D5	1860 x 885mm
D6	2260 x 1355mm
D7	2260 x 915mm
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W1	3530 x 2500mm (L1)
W2	3605 x 2585mm (L1)
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W4	2180 x 700mm
W5	430 x 430mm
W6	430 x 430mm
W7	1150 x 410mm
W8	565 x 410mm
W9	225mm wide
S1	(130) (715) x 410mm
S2	(120) (520) x 445mm

KEY PLAN

NOTE: The glass is stained with dirt & paint spatter, Metal frame has uneven finish due to excessive paint layers.

DRAWING SCALE: 1:10

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	04.07.2016

DRAWING NAME:
DOOR & WINDOW CONDITION ASSESSMENT
WINDOW TYPE - S2

DRAWING NUMBER: GB/CM/DW-19

SERIES: DOCUMENTATION DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001

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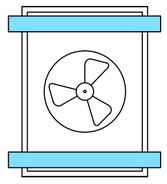
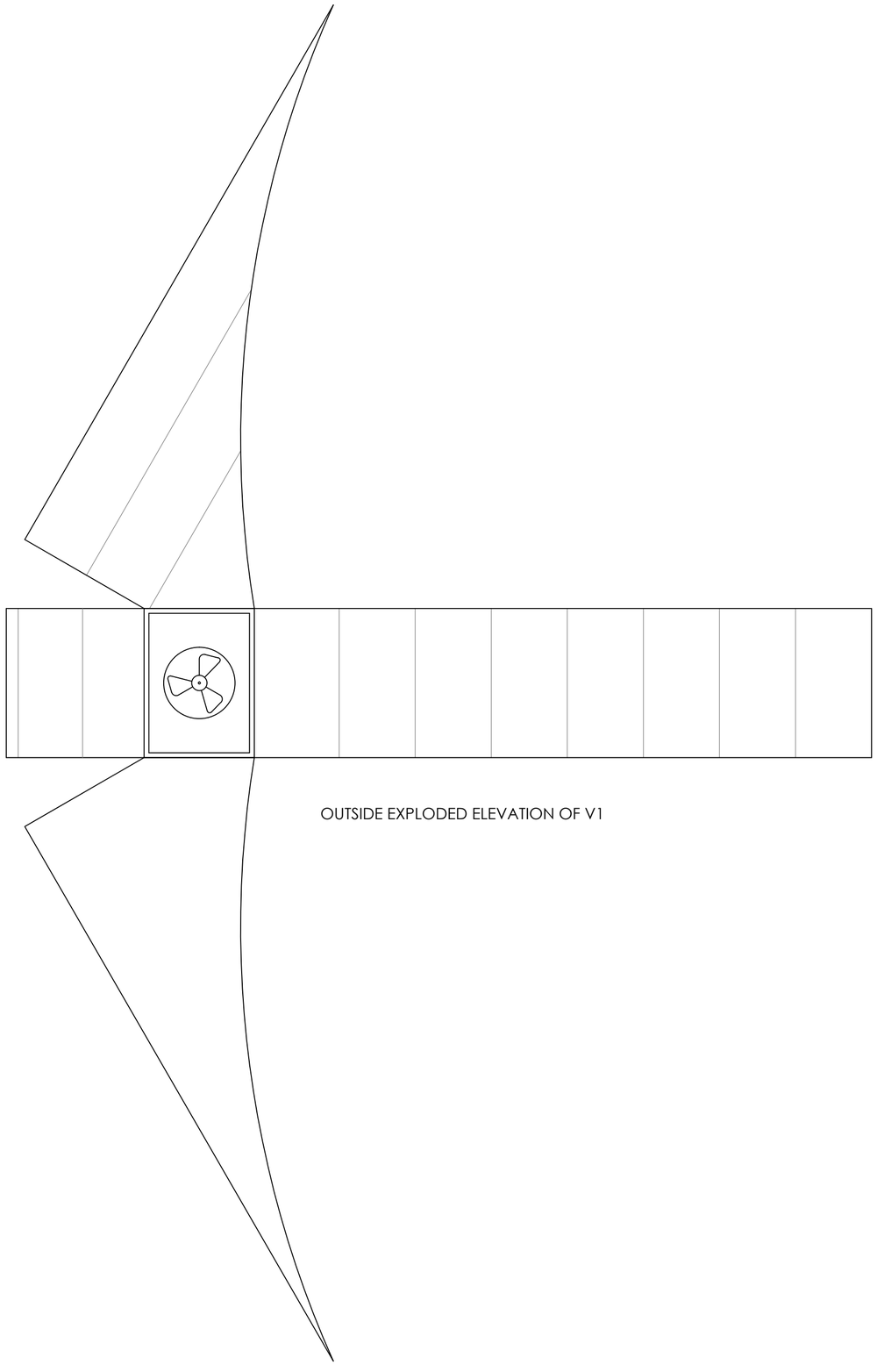
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT



INSIDE ELEVATION OF V1



OUTSIDE EXPLODED ELEVATION OF V1

OUTSIDE FACE OF V1

INNDER FACE OF V1

LINTEL SURFACE REPAIRED

LEGEND:

Loss of material	
Cracks	
Joint openings	
Uneven surface	
Nails	
Termite Loss	
Repair / New Additions	

DOOR WINDOW SCHEDULE (H x W)	
D	2300 x 2110mm
D1	2280 x 1770mm
D2	2235 x 905mm
D3	2300 x 905mm
D4	2385 x 915mm
D5	1860 x 885mm
D6	2260 x 1355mm
D7	2260 x 915mm
D8	2120 x 755mm
D9	2240 x 1080mm
D10	2065 x 755mm
W1	3530 x 2500mm (L1)
W2	3605 x 2585mm (L1)
W3	2515 x 2480mm (L1)
W4	2180 x 700mm
W5	430 x 430mm
W6	430 x 430mm
W7	1150 x 410mm
W8	565 x 410mm
W9	225mm wide
S1	(130) (715) x 410mm
S2	(120) (520) x 445mm

KEY PLAN

NOTE: The glass is stained with dirt & paint spatter, Metal frame has uneven finish due to excessive paint layers.

DRAWING SCALE: 1:16

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	04.07.2016

DRAWING NAME:
DOOR & WINDOW CONDITION ASSESSMENT
WINDOW TYPE - V1

DRAWING NUMBER: GB/CM/DW-20

SERIES: CONDITION MAPPING DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

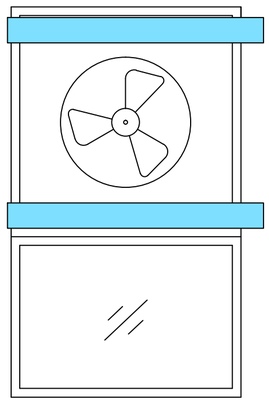
CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001

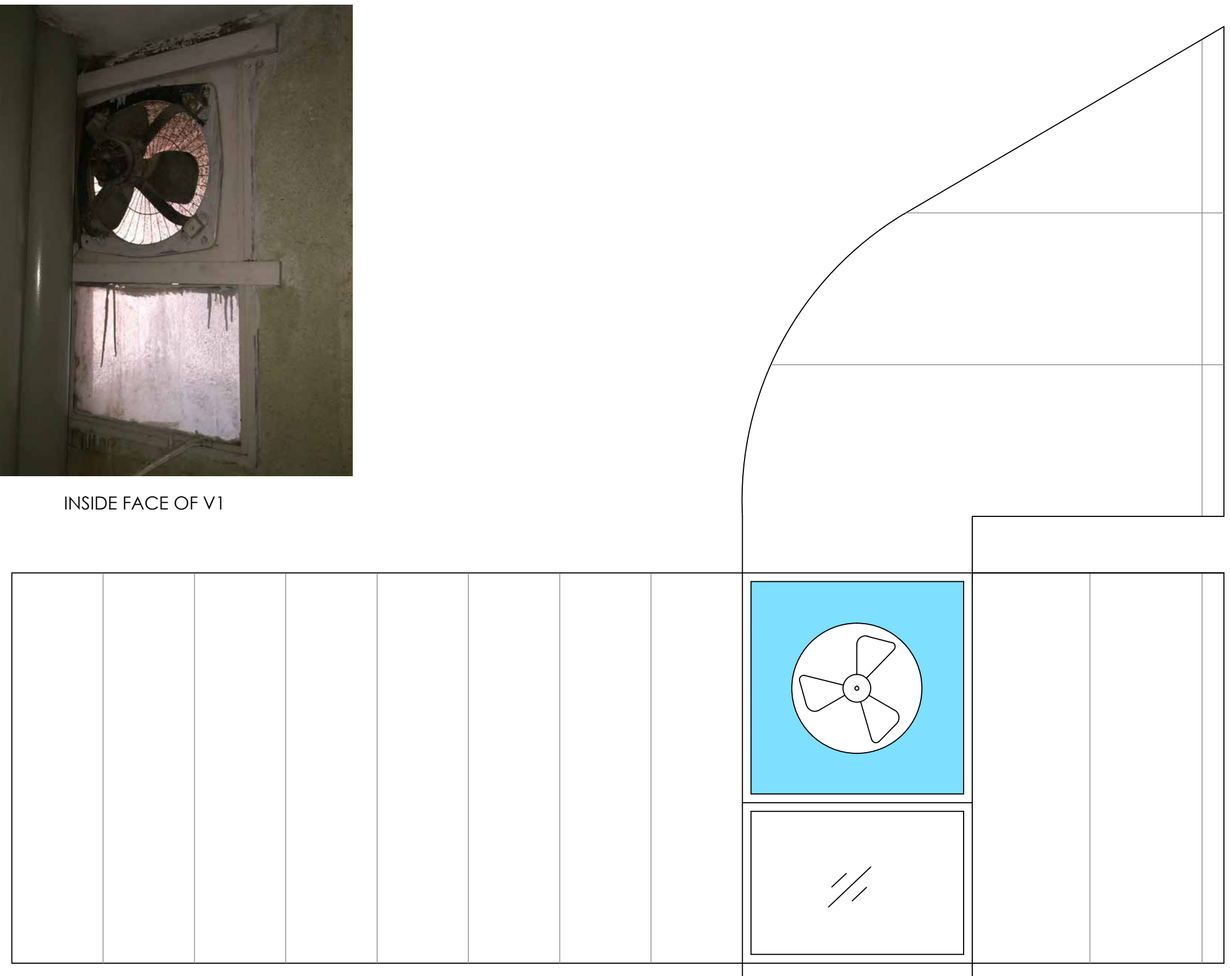
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

OUTSIDE FACE OF V1

INSIDE FACE OF V1



INSIDE ELEVATION OF V2



OUTSIDE EXPLODED ELEVATION OF V2

STAINS & ACCUMULATION ON SURFACE

OUTSIDE FACE OF V1

LEGEND:

Loss of material	
Cracks	
Joint openings	
Uneven surface	
Nails	
Termite Loss	
Repair / New Additions	

DOOR WINDOW SCHEDULE (H x W)	
D	2300 x 2110mm
D1	2280 x 1770mm
D2	2235 x 905mm
D3	2300 x 905mm
D4	2385 x 915mm
D5	1860 x 885mm
D6	2260 x 1355mm
D7	2260 x 915mm
D8	2120 x 755mm
D9	2240 x 1080mm
D10	2065 x 755mm
W1	3530 x 2500mm (L1)
W2	3605 x 2585mm (L1)
W3	2515 x 2480mm (L1)
W4	2180 x 700mm
W5	430 x 430mm
W6	430 x 430mm
W7	1150 x 410mm
W8	565 x 410mm
W9	225mm wide
S1	(130) (715) x 410mm
S2	(120) (520) x 445mm

KEY PLAN

NOTE: The glass is stained with dirt & paint spatter, Metal frame has uneven finish due to excessive paint layers.

DRAWING SCALE: 1:10

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	04.07.2016

DRAWING NAME:
DOOR & WINDOW CONDITION ASSESSMENT
WINDOW TYPE - V2

DRAWING NUMBER: GB/CM/DW-21

SERIES: CONDITION MAPPING DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

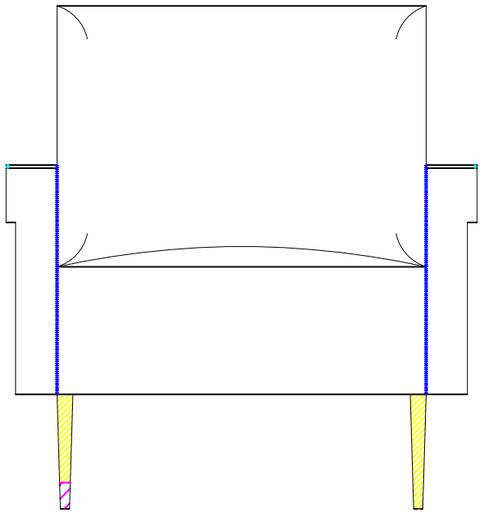
CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001

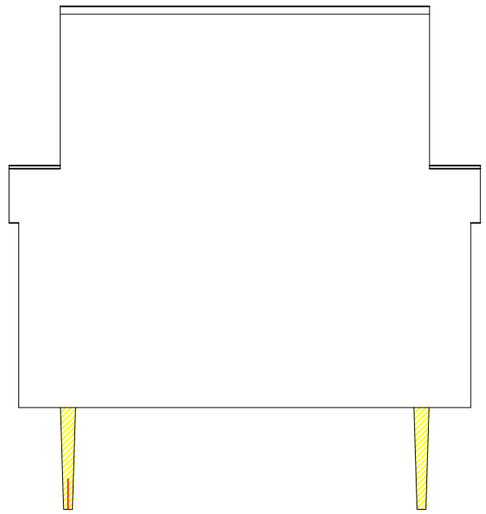
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT



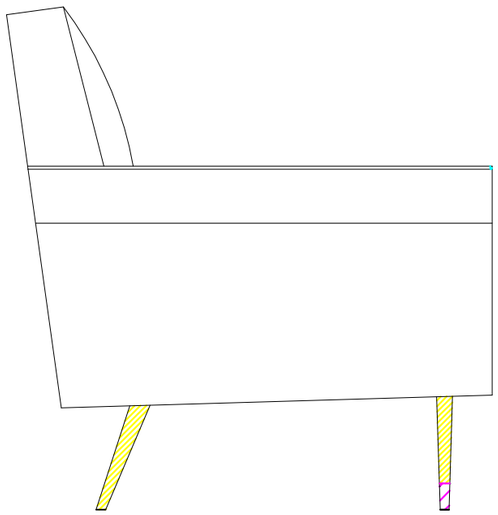
FRONT ELEVATION



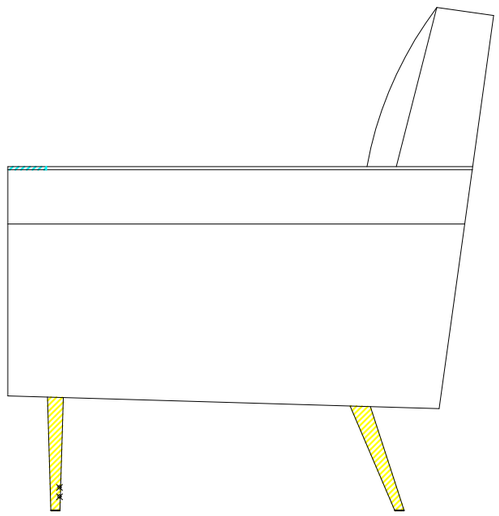
REAR ELEVATION

METAL CAPPING ON LEFT FRONT LEG

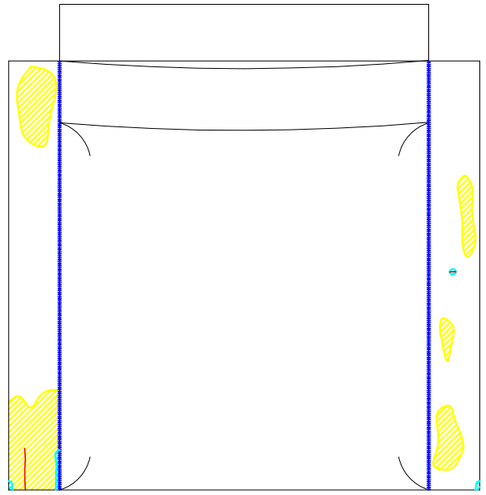
KEY IMAGE



LEFT SIDE ELEVATION



RIGHT SIDE ELEVATION



PLAN

LEGEND:

Loss of material	
Cracks	
Joint openings	
Uneven surface	
Nails	
Termite Loss	
Replacement / New Additions	

KEY PLAN

NOTE: The upholstery is damaged all over and needs to be changed

DRAWING SCALE: 1:10 0 20 50 100 150 mm.

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	11.06.2016

DRAWING NAME:
FURNITURE CONDITION ASSESSMENT
SOFA - 1

DRAWING NUMBER: GB/CM/F1/01

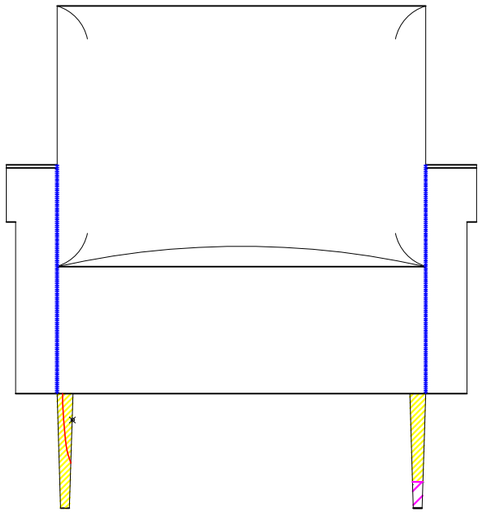
SERIES: CONDITION MAPPING DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

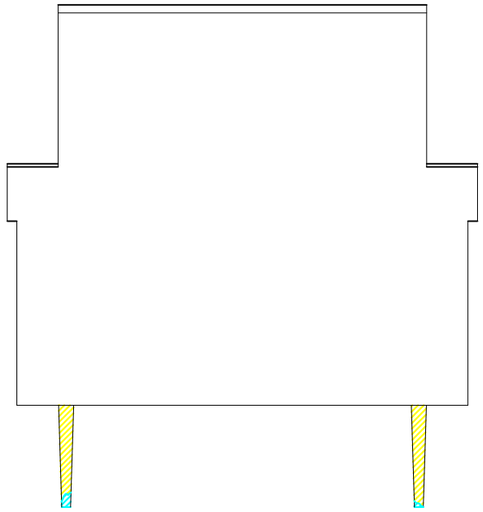
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



FRONT ELEVATION



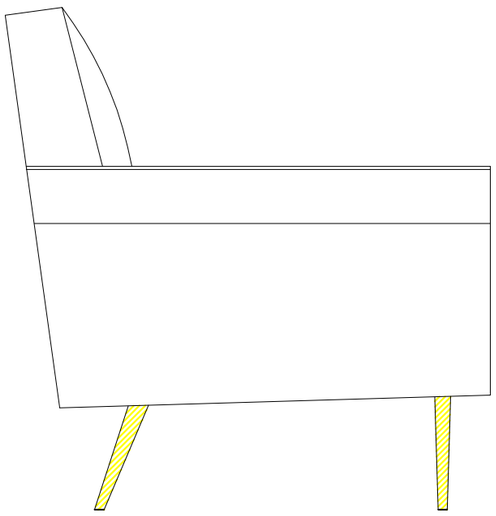
REAR ELEVATION

CRACK IN LEFT FRONT LEG

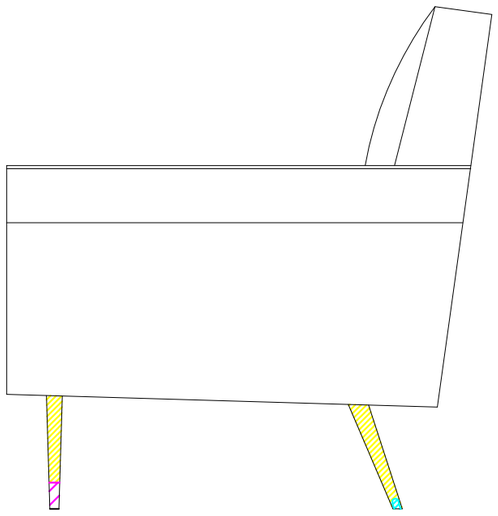
KEY IMAGE

LEGEND:

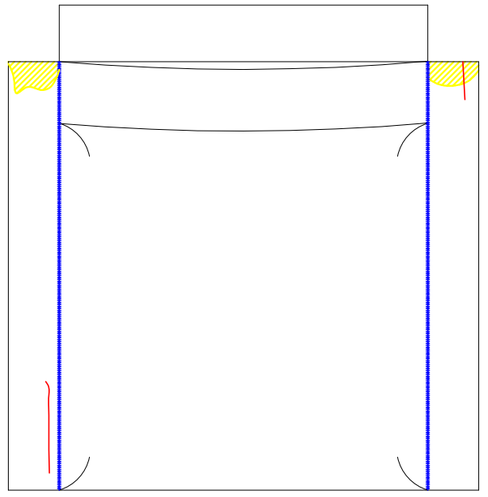
Loss of material	
Cracks	
Joint openings	
Uneven surface	
Nails	
Termite Loss	
Replacement / New Additions	



LEFT SIDE ELEVATION



RIGHT SIDE ELEVATION



PLAN

KEY PLAN

NOTE: The upholstery is damaged all over and needs to be changed

DRAWING SCALE: 1:10 (0 20 50 100 150 mm.)

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	11.06.2016

DRAWING NAME:
FURNITURE CONDITION ASSESSMENT
SOFA - 2

DRAWING NUMBER: GB/CM/F1/02

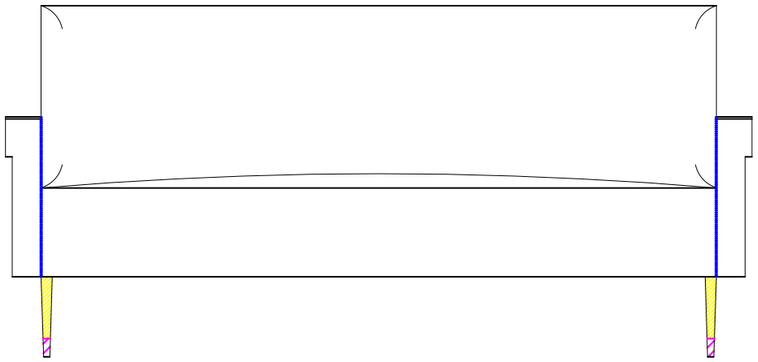
SERIES: CONDITION MAPPING DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

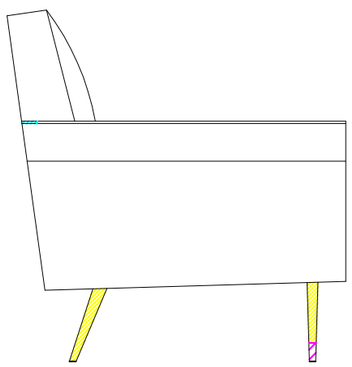
A-258, SOUTH CITY -1
GURGAON-122001



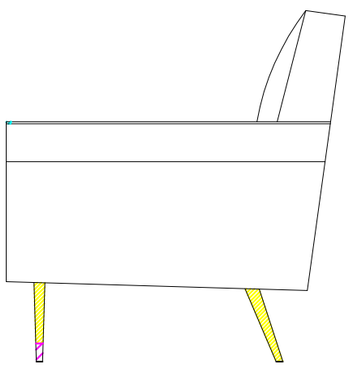
FRONT ELEVATION

REAR ELEVATION

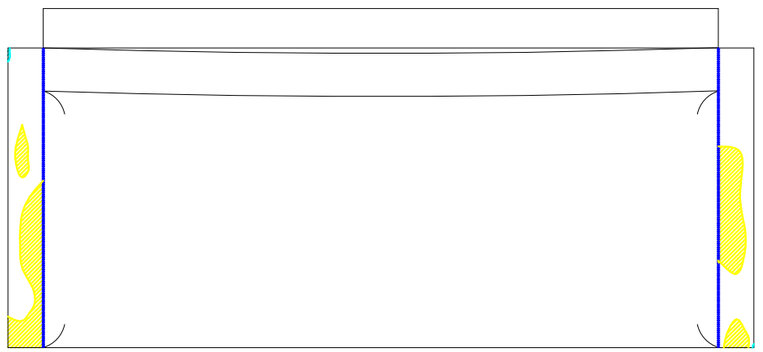
KEY IMAGE



LEFT SIDE ELEVATION



RIGHT SIDE ELEVATION



PLAN

LEGEND:

Loss of material	
Cracks	
Joint openings	
Uneven surface	
Nails	
Termite Loss	
Replacement / New Additions	

KEY PLAN

NOTE: The upholstery is damaged all over and needs to be changed

DRAWING SCALE: 1:10

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	11.06.2016

DRAWING NAME:
FURNITURE CONDITION ASSESSMENT
SOFA - 3

DRAWING NUMBER: GB/CM/F1/03

SERIES: DOCUMENTATION DRAWINGS

PROJECT:

CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

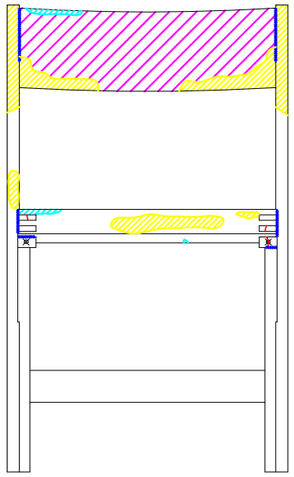
CLIENT:

PANJAB UNIVERSITY, CHANDIGARH

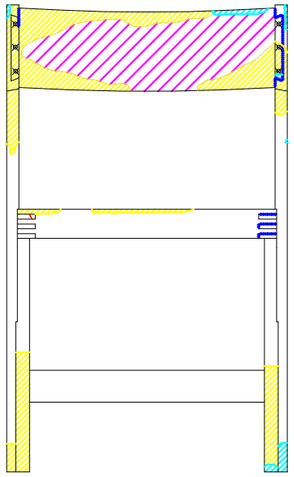
CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



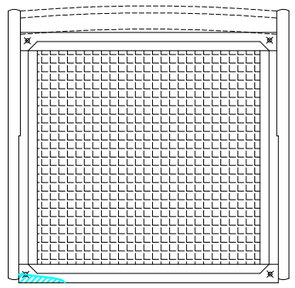
ELEVATION (1)



ELEVATION (3)

(3)

(4)

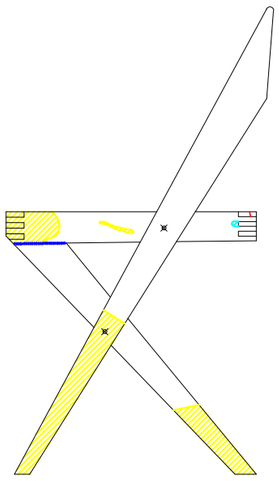


(2)

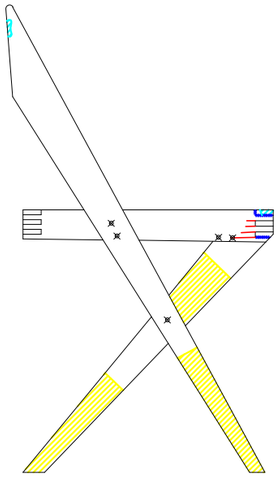
(1)

UPPER LEVEL PLAN

KEY IMAGE



ELEVATION (2)



ELEVATION (4)

JOINT OPENING

MATERIAL LOSS

NOTES:

1. Paint or polish to be scraped.
2. Incase there is problem in joints, then the joints need to be replaced.
3. If any component is beyond repair, replacement in the same wood is required.
4. PVC cane(replaced) in the chairs need to be replaced to bamboo/jute cane(origanal).
5. In case of Upholstery, all the springs, foam and cloth needs to be replaced. No record exists for the Upholstery.
6. No nails to be used for repair. Only rawl plugs and S.S. screws to be used.
7. PVC hard rubber buffers to be placed below the legs of chairs.
8. Coating of Linseed oil/ Plain spirit polish to be used.

LEGEND:

Material Loss	
Cracks	
Uneven Surface	
Open joints	
Nails	
Termite	
Previous Repair/Intervention	

KEY PLAN

DRAWING SCALE: 1:10

GRAPHIC SCALE:

0 25 50 100 250

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	BHAWNA DANDONA	07.11.2016

DRAWING NAME:
FURNITURE- CHAIR TYPE-1- GS/21

DRAWING NUMBER: GB/CM/F2/01

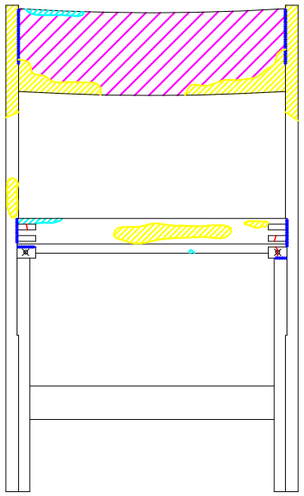
SERIES: CONDITION MAPPING

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

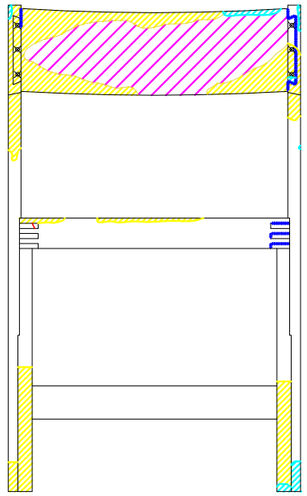
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



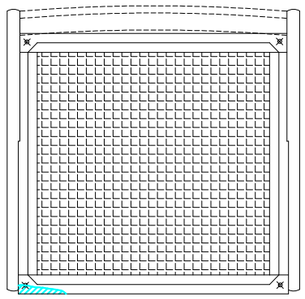
ELEVATION (1)



ELEVATION (3)

(3)

(4)

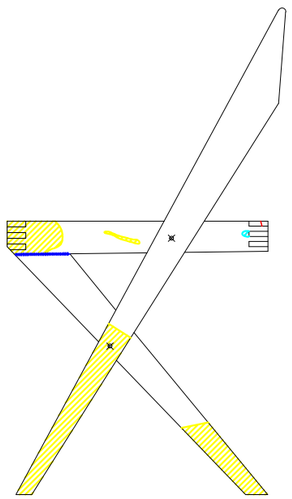


(2)

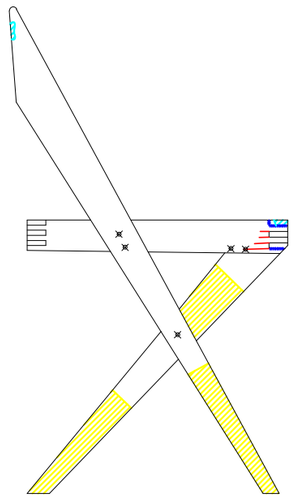
(1)

UPPER LEVEL PLAN

KEY IMAGE



ELEVATION (2)



ELEVATION (4)

JOINT OPENING

MATERIAL LOSS

LEGEND:

- Loss of material
- Cracks
- Joint openings
- Uneven surface
- Nails
- Termite Loss
- Replacement / New Additions

KEY PLAN

NOTE: The chair has has paint spatter & dirt accumulation in various areas.

DRAWING SCALE: 1:10 (0, 20, 50, 100)

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	23/09/2016

DRAWING NAME:
FURNITURE CONDITION ASSESSMENT
CHAIR TYPE 1 - GS/21

DRAWING NUMBER: GB/CM/F2/01

SERIES: CONDITION MAPPING DRAWING

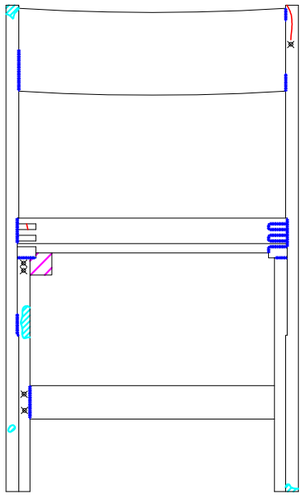
PROJECT:
CONSERVATION PLANNING OF GANDHI BHAWAN P.U.
FUNDED BY THE GETTY FOUNDATION, U.S.A.

CONSULTANT:

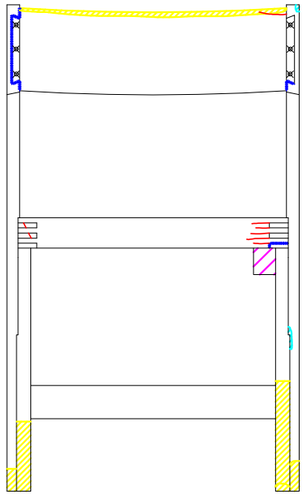
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION OF NATURE ARTS & HERITAGE

A-258 SOUTH CITY-1
GURGAON, 122001

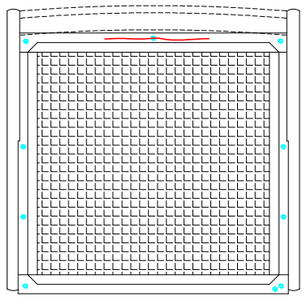
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH



ELEVATION (1)



ELEVATION (3)

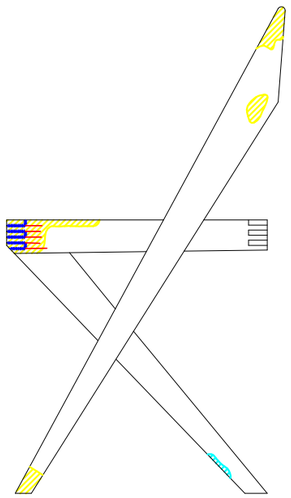


UPPER LEVEL PLAN

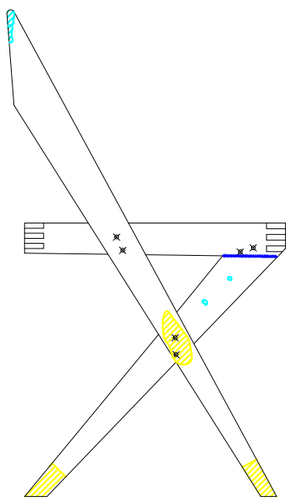
KEY IMAGE

LEGEND:

- Loss of material
- Cracks
- Joint openings
- Uneven surface
- Nails
- Termite Loss
- Replacement / New Additions



ELEVATION (2)



ELEVATION (4)

CRACK

INAPPROPRIATE REPAIR

KEY PLAN

NOTE: The chair has has paint spatter & dirt accumulation in various areas.

DRAWING SCALE: 1:10

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	23/09/2016

DRAWING NAME:
FURNITURE CONDITION ASSESSMENT
CHAIR TYPE 1 - GS/41

DRAWING NUMBER: GB/CM/F2/02

SERIES: CONDITION MAPPING DRAWING

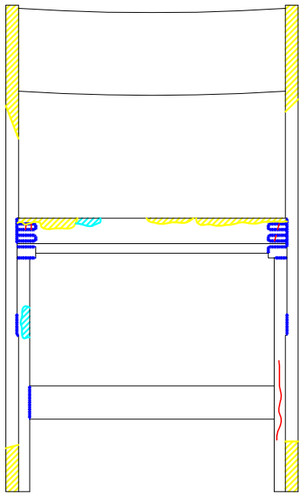
PROJECT:
CONSERVATION PLANNING OF GANDHI BHAWAN P.U.
FUNDED BY THE GETTY FOUNDATION, U.S.A.

CONSULTANT:

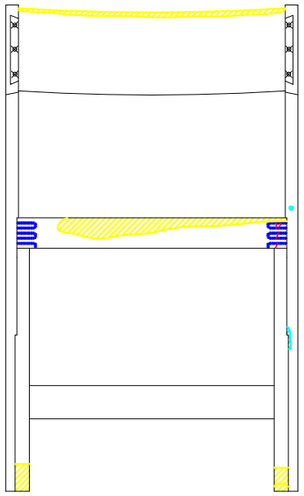
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION OF NATURE ARTS & HERITAGE

A-258 SOUTH CITY-1
GURGAON, 122001

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH



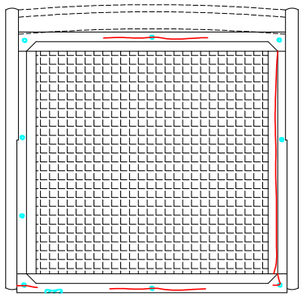
ELEVATION (1)



ELEVATION (3)

(3)

(4)

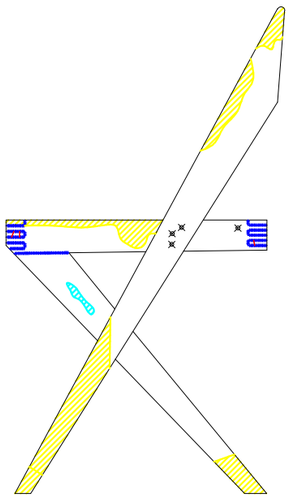


(2)

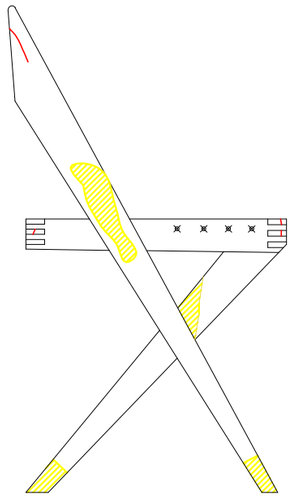
(1)

UPPER LEVEL PLAN

KEY IMAGE



ELEVATION (2)



ELEVATION (4)

CRACK

CRACK

LEGEND:

- Loss of material
- Cracks
- Joint openings
- Uneven surface
- Nails
- Termite Loss
- Replacement / New Additions

KEY PLAN

NOTE: The chair has has paint spatter & dirt accumulation in various areas.

DRAWING SCALE: 1:10

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	23/09/2016

DRAWING NAME:
FURNITURE CONDITION ASSESSMENT
CHAIR TYPE 1 - GS/28

DRAWING NUMBER: GB/CM/F2/03

SERIES: CONDITION MAPPING DRAWING

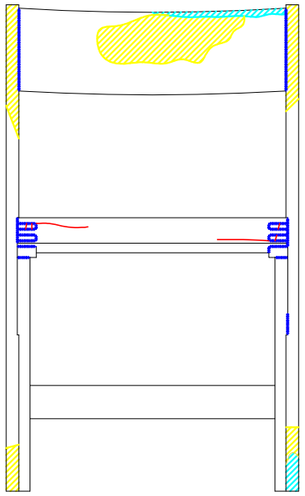
PROJECT:
CONSERVATION PLANNING OF GANDHI BHAWAN P.U.
FUNDED BY THE GETTY FOUNDATION, U.S.A.

CONSULTANT:

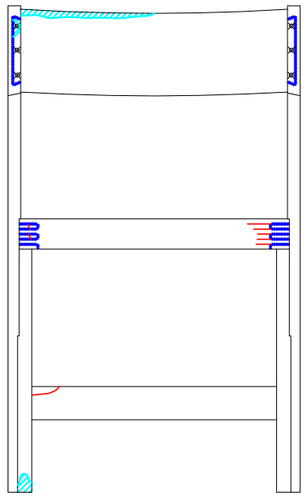
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION OF NATURE ARTS & HERITAGE

A-258 SOUTH CITY-1
GURGAON, 122001

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH



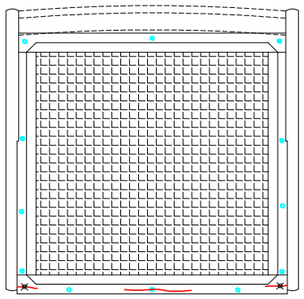
ELEVATION (1)



ELEVATION (3)

(3)

(4)



(2)

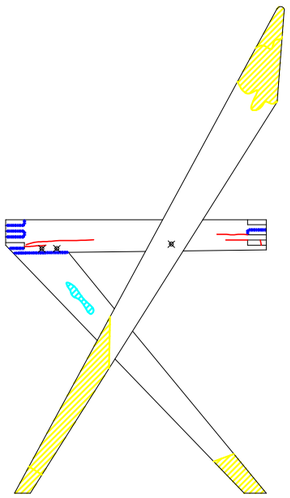
(1)

UPPER LEVEL PLAN

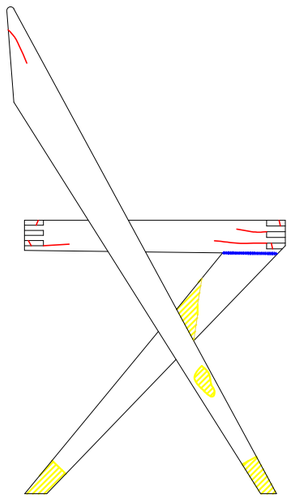
KEY IMAGE

LEGEND:

- Loss of material
- Cracks
- Joint openings
- Uneven surface
- Nails
- Termite Loss
- Replacement / New Additions



ELEVATION (2)



ELEVATION (4)

CRACK

MATERIAL LOSS

KEY PLAN

NOTE: The chair has has paint spatter & dirt accumulation in various areas.

DRAWING SCALE: 1:10

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	23/09/2016

DRAWING NAME:

FURNITURE CONDITION ASSESSMENT

CHAIR TYPE 1 - GS/2

DRAWING NUMBER: GB/CM/F2/04

SERIES: CONDITION MAPPING DRAWING

PROJECT:

CONSERVATION PLANNING OF GANDHI BHAWAN P.U.
FUNDED BY THE GETTY FOUNDATION, U.S.A.

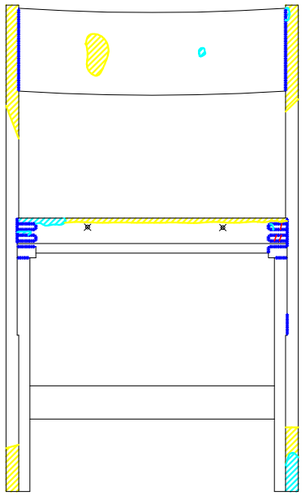
CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION OF NATURE ARTS & HERITAGE

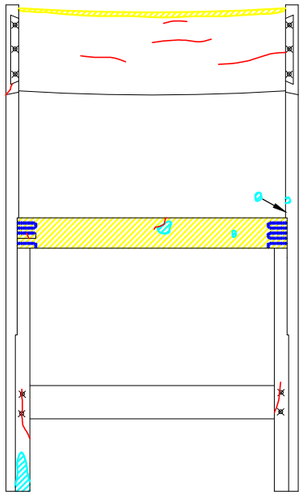
A-258 SOUTH CITY-1
GURGAON, 122001

CLIENT:

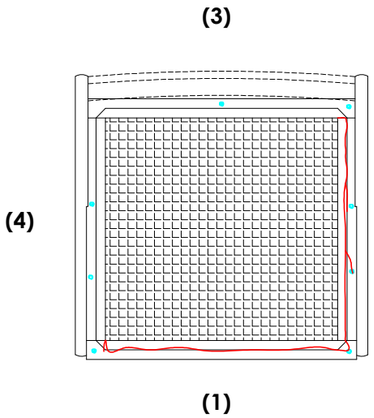
PANJAB UNIVERSITY, CHANDIGARH



ELEVATION (1)

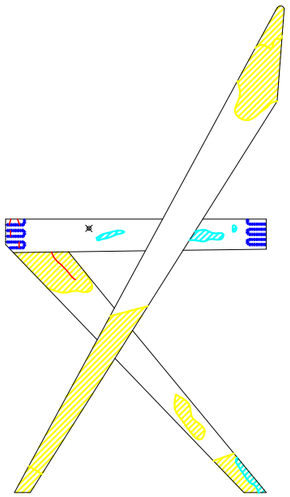


ELEVATION (3)

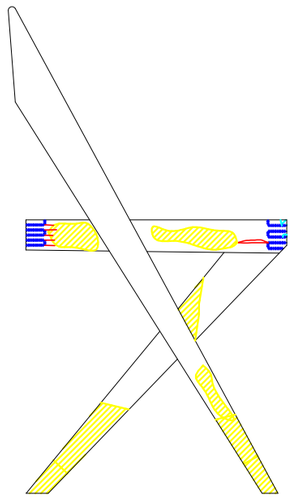


UPPER LEVEL PLAN

KEY IMAGE



ELEVATION (2)



ELEVATION (4)

CRACK

MATERIAL LOSS

LEGEND:

- Loss of material
- Cracks
- Joint openings
- Uneven surface
- Nails
- Termite Loss
- Replacement / New Additions

KEY PLAN

NOTE: The chair has has paint spatter & dirt accumulation in various areas.

DRAWING SCALE: 1:10

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	23/09/2016

DRAWING NAME:
FURNITURE CONDITION ASSESSMENT
CHAIR TYPE 1 - GS/16

DRAWING NUMBER: GB/CM/F2/05

SERIES: CONDITION MAPPING DRAWING

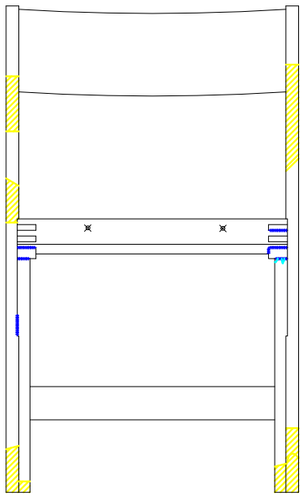
PROJECT:
CONSERVATION PLANNING OF GANDHI BHAWAN P.U.
FUNDED BY THE GETTY FOUNDATION, U.S.A.

CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION OF NATURE ARTS & HERITAGE

A-258 SOUTH CITY-1
GURGAON, 122001

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH



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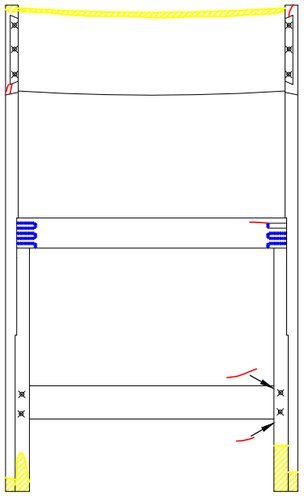
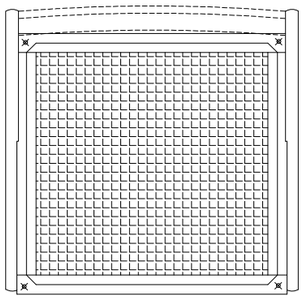


ELEVATION (3)

(3)

(4)

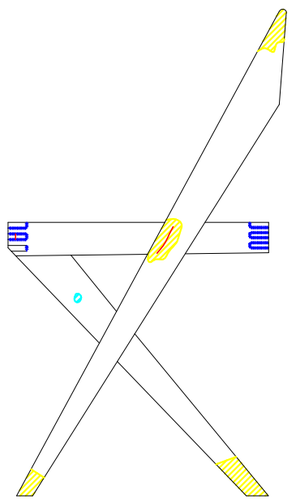


(2)

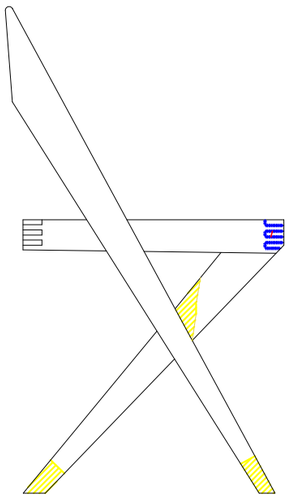
(1)

UPPER LEVEL PLAN

KEY IMAGE



ELEVATION (2)



ELEVATION (4)

MATERIAL LOSS

LOOSE JOINTS

LEGEND:

- Loss of material
- Cracks
- Joint openings
- Uneven surface
- Nails
- Termite Loss
- Replacement / New Additions

KEY PLAN

NOTE: The chair has has paint spatter & dirt accumulation in various areas.

DRAWING SCALE: 1:10 (0, 20, 50, 100)

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	23/09/2016

DRAWING NAME:

FURNITURE CONDITION ASSESSMENT
CHAIR TYPE 1 - GS/10

DRAWING NUMBER: GB/CM/F2/06

SERIES: CONDITION MAPPING DRAWING

PROJECT:

CONSERVATION PLANNING OF GANDHI BHAWAN P.U.
FUNDED BY THE GETTY FOUNDATION, U.S.A.

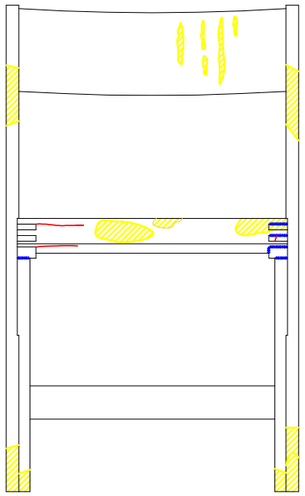
CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION OF NATURE ARTS & HERITAGE

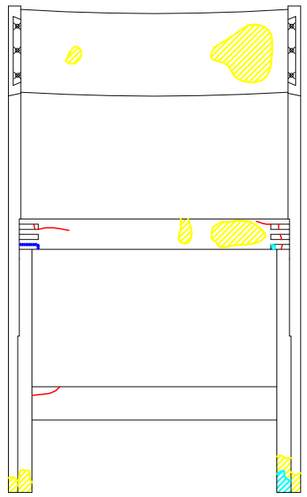
A-258 SOUTH CITY-1
GURGAON, 122001

CLIENT:

PANJAB UNIVERSITY, CHANDIGARH



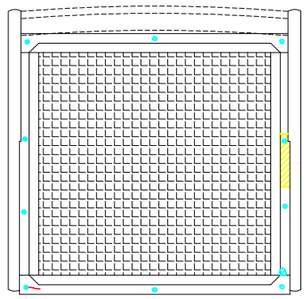
ELEVATION (1)



ELEVATION (3)

(3)

(4)

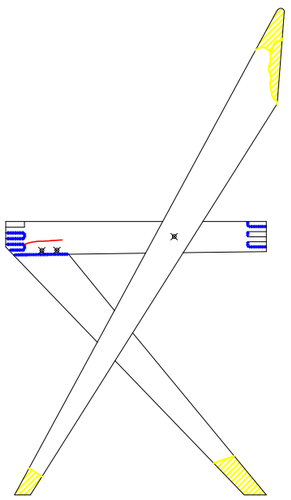


(2)

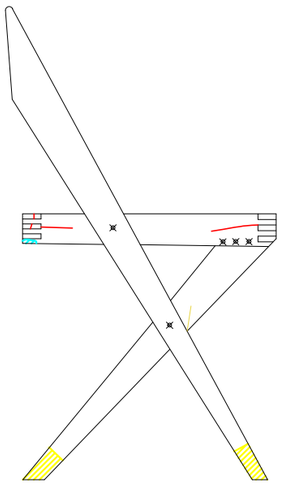
(1)

UPPER LEVEL PLAN

KEY IMAGE



ELEVATION (2)



ELEVATION (4)

UNEVEN SURFACE

CRACKS IN JOINTS

LEGEND:

Loss of material	
Cracks	
Joint openings	
Uneven surface	
Nails	
Termite Loss	
Replacement / New Additions	

KEY PLAN

NOTE: The chair has has paint spatter & dirt accumulation in various areas.

DRAWING SCALE: 1:10 (0, 20, 50, 100)

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	23/09/2016

DRAWING NAME:
FURNITURE CONDITION ASSESSMENT
CHAIR TYPE 1 - GS/46

DRAWING NUMBER: GB/CM/F2/07

SERIES: CONDITION MAPPING DRAWING

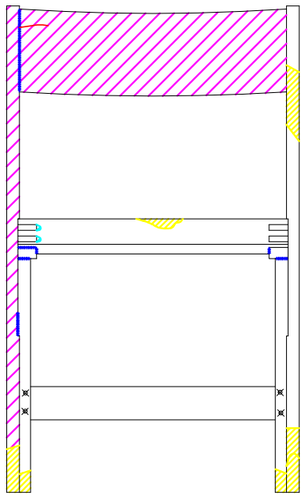
PROJECT:
CONSERVATION PLANNING OF GANDHI BHAWAN P.U.
FUNDED BY THE GETTY FOUNDATION, U.S.A.

CONSULTANT:

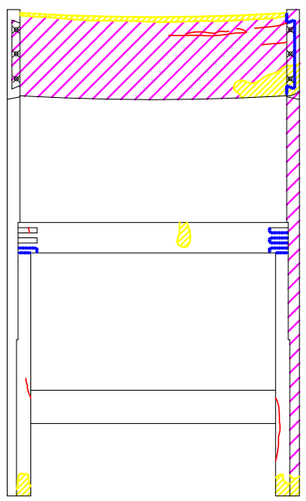
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION OF NATURE ARTS & HERITAGE

A-258 SOUTH CITY-1
GURGAON, 122001

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH



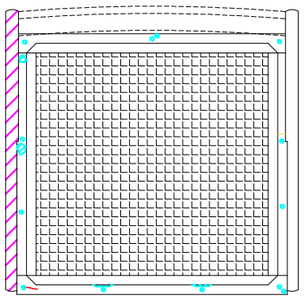
ELEVATION (1)



ELEVATION (3)

(3)

(4)

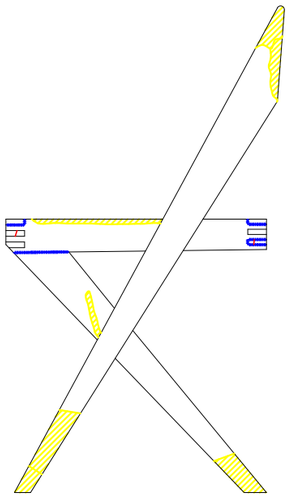


(2)

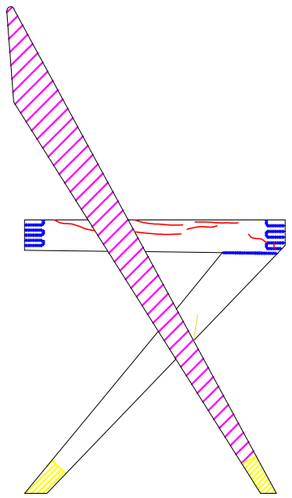
(1)

UPPER LEVEL PLAN

KEY IMAGE



ELEVATION (2)



ELEVATION (4)

JOINT OPENING

LOSS OF MATERIAL

LEGEND:

- Loss of material
- Cracks
- Joint openings
- Uneven surface
- Nails
- Termite Loss
- Replacement / New Additions

KEY PLAN

NOTE: The chair has has paint spatter & dirt accumulation in various areas.

DRAWING SCALE: 1:10

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	23/09/2016

DRAWING NAME:
FURNITURE CONDITION ASSESSMENT
CHAIR TYPE 1 - GS/7

DRAWING NUMBER: GB/CM/F2/08

SERIES: CONDITION MAPPING DRAWING

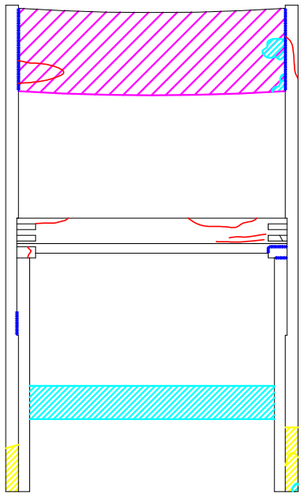
PROJECT:
CONSERVATION PLANNING OF GANDHI BHAWAN P.U.
FUNDED BY THE GETTY FOUNDATION, U.S.A.

CONSULTANT:

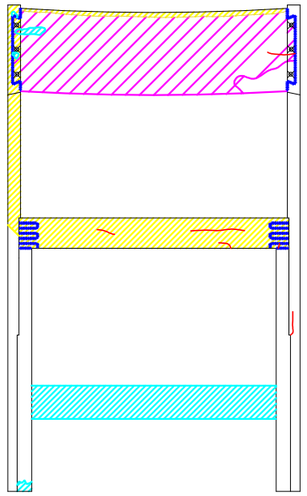
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION OF NATURE ARTS & HERITAGE

A-258 SOUTH CITY-1
GURGAON, 122001

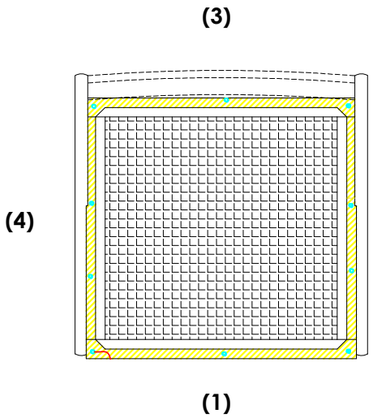
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH



ELEVATION (1)

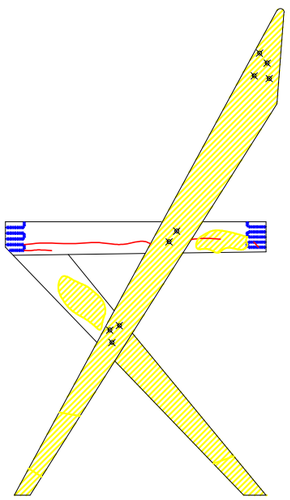


ELEVATION (3)

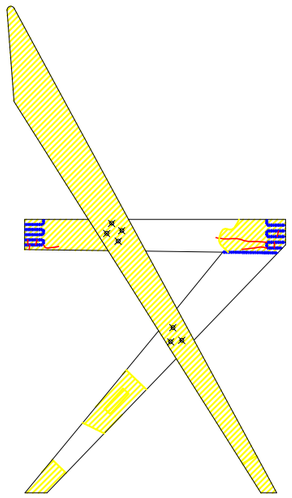


UPPER LEVEL PLAN

KEY IMAGE



ELEVATION (2)



ELEVATION (4)

MISSING MEMBER

INAPPROPRIATE REPAIR

LEGEND:

- Loss of material
- Cracks
- Joint openings
- Uneven surface
- Nails
- Termite Loss
- Replacement / New Additions

KEY PLAN

NOTE: The chair has has paint spatter & dirt accumulation in various areas.

DRAWING SCALE: 1:10 (0, 20, 50, 100)

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	23/09/2016

DRAWING NAME:
FURNITURE CONDITION ASSESSMENT
CHAIR TYPE 1 - GS/4

DRAWING NUMBER: GB/CM/F2/09

SERIES: CONDITION MAPPING DRAWING

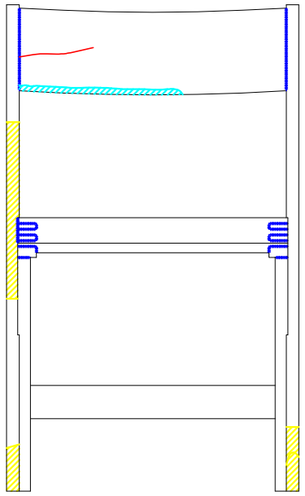
PROJECT:
CONSERVATION PLANNING OF GANDHI BHAWAN P.U.
FUNDED BY THE GETTY FOUNDATION, U.S.A.

CONSULTANT:

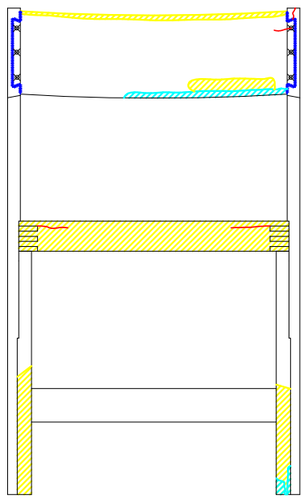
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION OF NATURE ARTS & HERITAGE

A-258 SOUTH CITY-1
GURGAON, 122001

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH



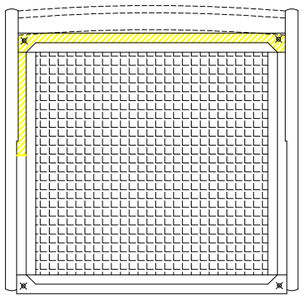
ELEVATION (1)



ELEVATION (3)

(3)

(4)

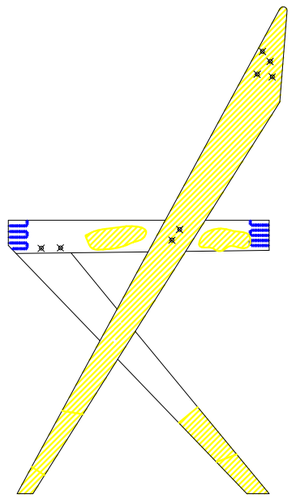


(2)

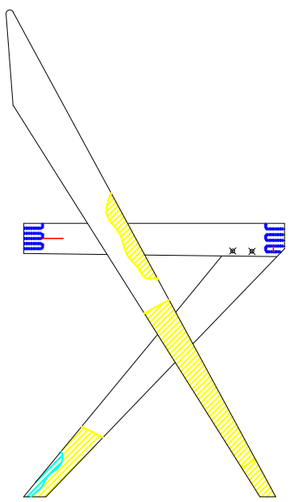
(1)

UPPER LEVEL PLAN

KEY IMAGE



ELEVATION (2)



ELEVATION (4)

MATERIAL LOSS

MATERIAL LOSS

LEGEND:

- Loss of material
- Cracks
- Joint openings
- Uneven surface
- Nails
- Termite Loss
- Replacement / New Additions

KEY PLAN

NOTE: The chair has has paint spatter & dirt accumulation in various areas.

DRAWING SCALE: 1:10

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	23/09/2016

DRAWING NAME:

FURNITURE CONDITION ASSESSMENT
CHAIR TYPE 1 - GS/3

DRAWING NUMBER: GB/CM/F2/10

SERIES: CONDITION MAPPING DRAWING

PROJECT:

CONSERVATION PLANNING OF GANDHI BHAWAN P.U.
FUNDED BY THE GETTY FOUNDATION, U.S.A.

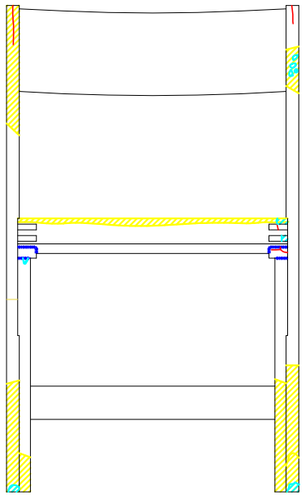
CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION OF NATURE ARTS & HERITAGE

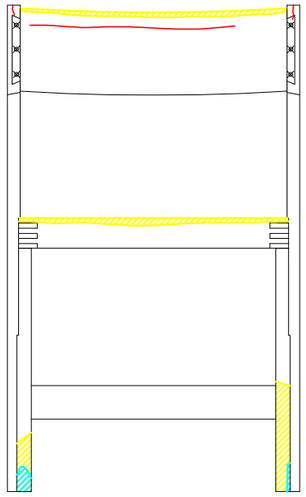
A-258 SOUTH CITY-1
GURGAON, 122001

CLIENT:

PANJAB UNIVERSITY, CHANDIGARH



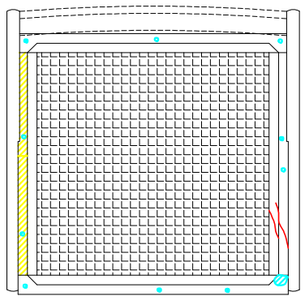
ELEVATION (1)



ELEVATION (3)

(3)

(4)

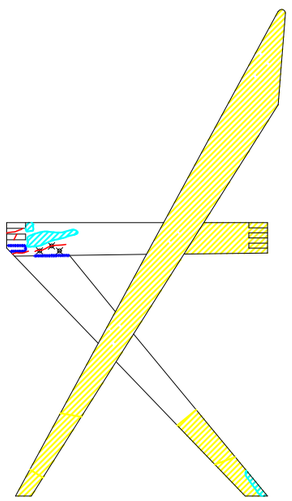


(2)

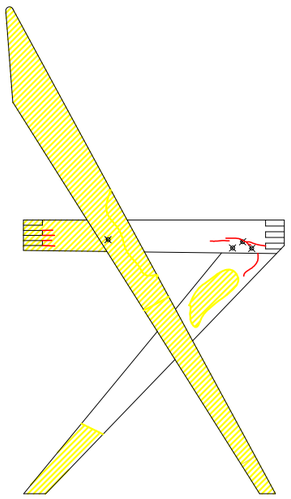
(1)

UPPER LEVEL PLAN

KEY IMAGE



ELEVATION (2)



ELEVATION (4)

CRACK

MATERIAL LOSS

LEGEND:

Loss of material	
Cracks	
Joint openings	
Uneven surface	
Nails	
Termite Loss	
Replacement / New Additions	

KEY PLAN

NOTE: The chair has has paint spatter & dirt accumulation in various areas.

DRAWING SCALE: 1:10 (0, 20, 50, 100)

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	23/09/2016

DRAWING NAME:
FURNITURE CONDITION ASSESSMENT
CHAIR TYPE 1 - GS/20

DRAWING NUMBER: GB/CM/F2/11

SERIES: CONDITION MAPPING DRAWING

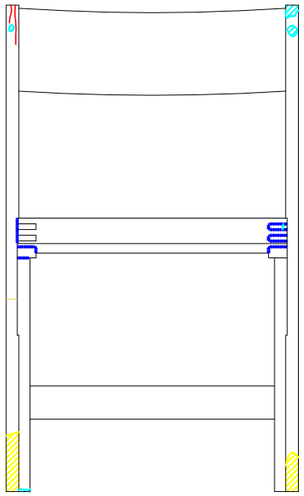
PROJECT:
CONSERVATION PLANNING OF GANDHI BHAWAN P.U.
FUNDED BY THE GETTY FOUNDATION, U.S.A.

CONSULTANT:

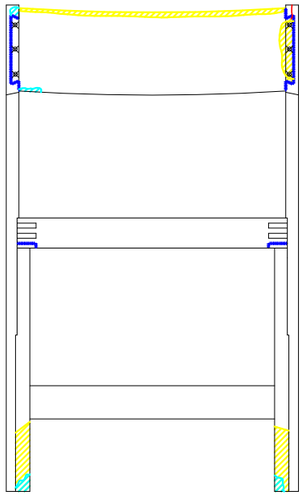
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION OF NATURE ARTS & HERITAGE

A-258 SOUTH CITY-1
GURGAON, 122001

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH



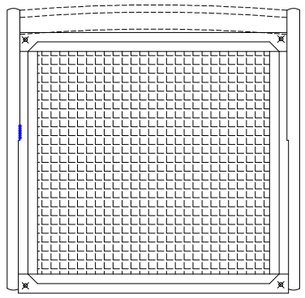
ELEVATION (1)



ELEVATION (3)

(3)

(4)

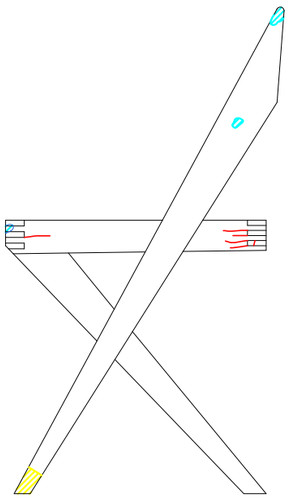


(2)

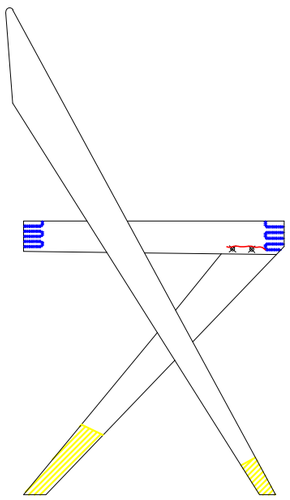
(1)

UPPER LEVEL PLAN

KEY IMAGE



ELEVATION (2)



ELEVATION (4)

CRACK

MATERIAL LOSS

LEGEND:

Loss of material	
Cracks	
Joint openings	
Uneven surface	
Nails	
Termite Loss	
Replacement / New Additions	

KEY PLAN

NOTE: The chair has has paint spatter & dirt accumulation in various areas.

DRAWING SCALE: 1:10

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	23/09/2016

DRAWING NAME:

FURNITURE CONDITION ASSESSMENT

CHAIR TYPE 1 - GS/9

DRAWING NUMBER: GB/CM/F2/12

SERIES: CONDITION MAPPING DRAWING

PROJECT:

CONSERVATION PLANNING OF GANDHI BHAWAN P.U.
FUNDED BY THE GETTY FOUNDATION, U.S.A.

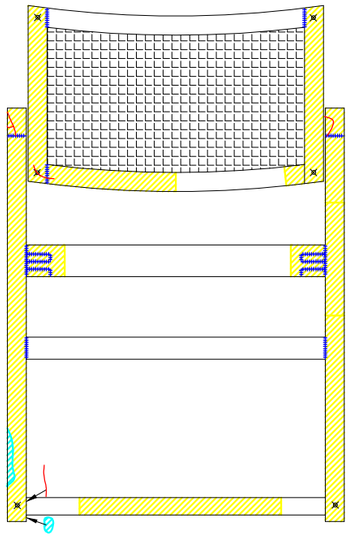
CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION OF NATURE ARTS & HERITAGE

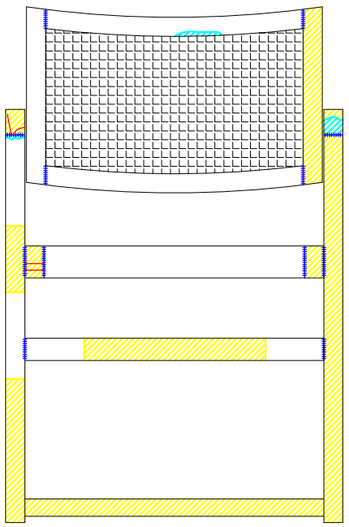
A-258 SOUTH CITY-1
GURGAON, 122001

CLIENT:

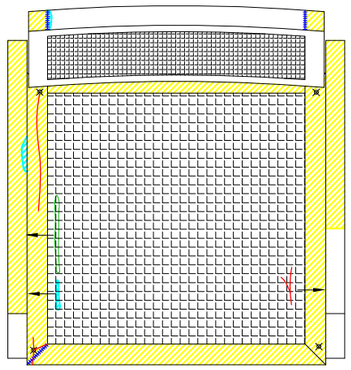
PANJAB UNIVERSITY, CHANDIGARH



FRONT ELEVATION



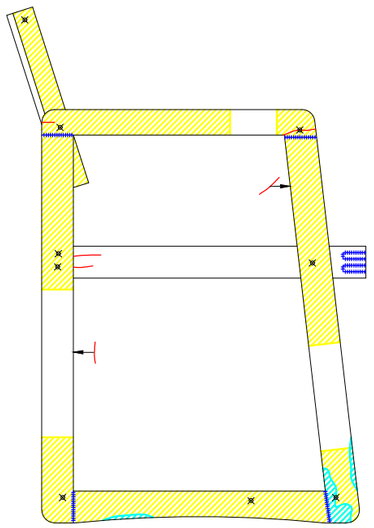
REAR ELEVATION



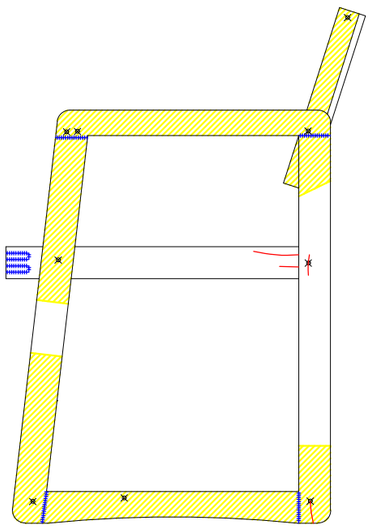
UPPER LEVEL PLAN

MAJOR MATERIAL LOSS LEFT ARM REST

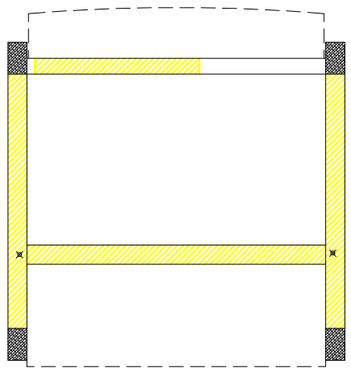
KEY IMAGE



LEFT SIDE ELEVATION



RIGHT SIDE ELEVATION



LOWER LEVEL PLAN

JOINT OPENING & MATERIAL LOSS ON RIGHT LEG

LEGEND:

- Loss of material
- Cracks
- Loose Joint
- Uneven surface
- Nails
- Termite
- Replacement / New Additions

KEY PLAN

NOTE: The chair has paint spatter & dirt accumulation in various areas.

DRAWING SCALE: 1:10 (0 20 50 100 150 mm.)

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	1/06/2016

DRAWING NAME:
FURNITURE CONDITION ASSESSMENT
CHAIR TYPE 1 - GS/9

DRAWING NUMBER: GB/CM/F3/01

SERIES: CONDITION MAPPING DRAWING

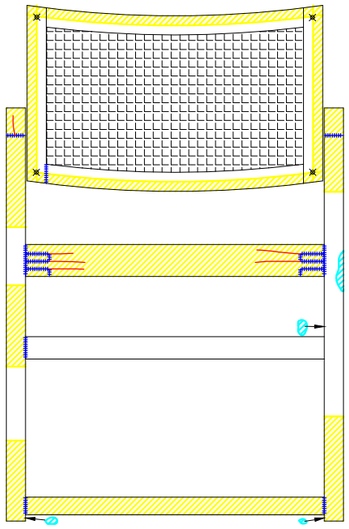
PROJECT:
CONSERVATION PLANNING OF GANDHI BHAWAN P.U.
FUNDED BY THE GETTY FOUNDATION, U.S.A.

CONSULTANT:

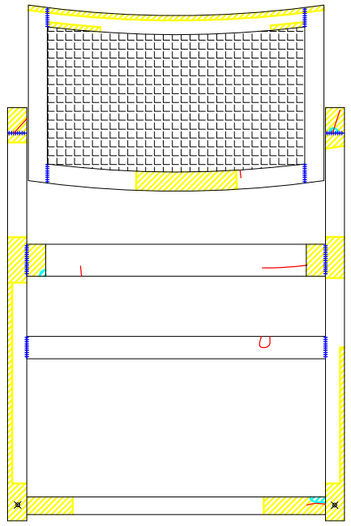
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION OF NATURE ARTS & HERITAGE

A-258 SOUTH CITY-1
GURGAON, 122001

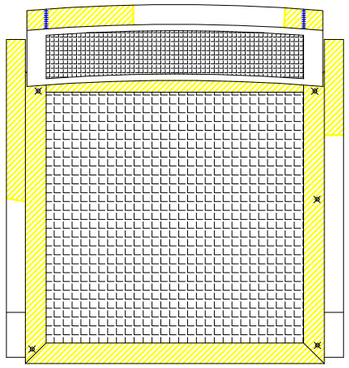
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH



FRONT ELEVATION



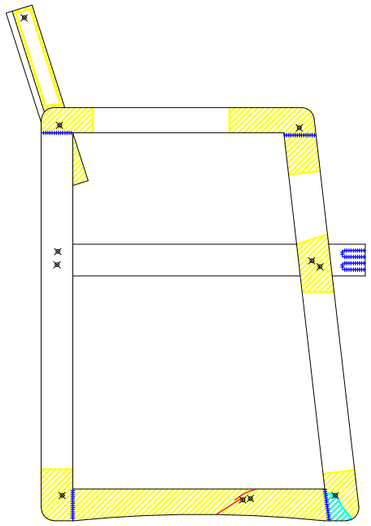
REAR ELEVATION



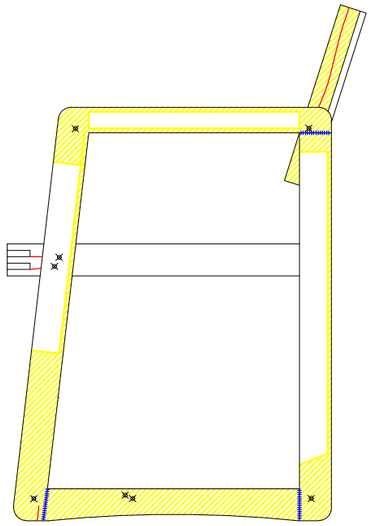
UPPER LEVEL PLAN

MAJOR CRACK LEFT SIDE OF BACK REST

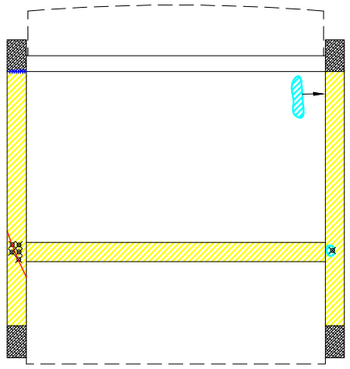
KEY IMAGE



LEFT SIDE ELEVATION



RIGHT SIDE ELEVATION



LOWER LEVEL PLAN

MAJOR CRACK RIGHT SIDE BOTTOM MEMBER

LEGEND:

Loss of material	
Cracks	
Loose Joint	
Uneven surface	
Nails	
Termite	
Replacement / New Additions	

KEY PLAN

NOTE: The chair has paint spatter & dirt accumulation in various areas.

DRAWING SCALE: 1:10 (0 20 50 100 150 mm.)

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	1/06/2016

DRAWING NAME:
FURNITURE CONDITION ASSESSMENT
CHAIR TYPE 1 - GS/37

DRAWING NUMBER: GB/CM/F3/02

SERIES: CONDITION MAPPING DRAWING

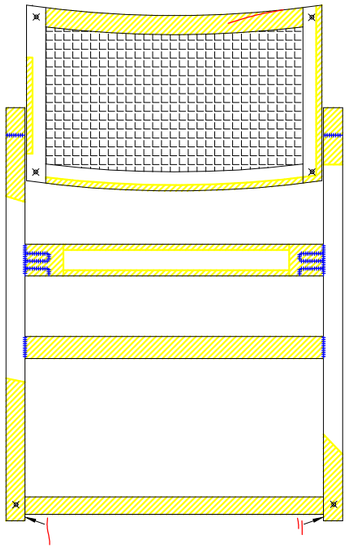
PROJECT:
CONSERVATION PLANNING OF GANDHI BHAWAN P.U.
FUNDED BY THE GETTY FOUNDATION, U.S.A.

CONSULTANT:

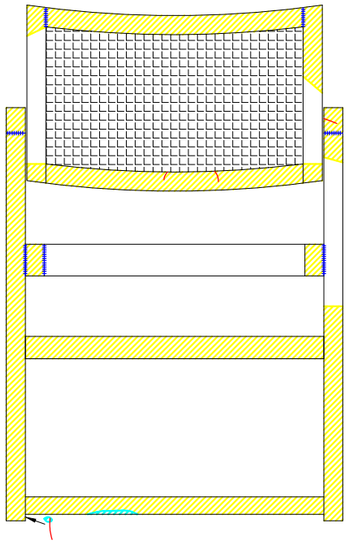
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION OF NATURE ARTS & HERITAGE

A-258 SOUTH CITY-1
GURGAON, 122001

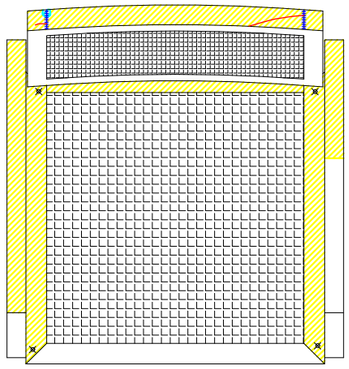
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH



FRONT ELEVATION



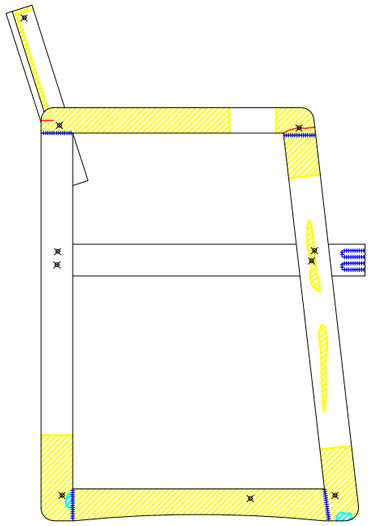
REAR ELEVATION



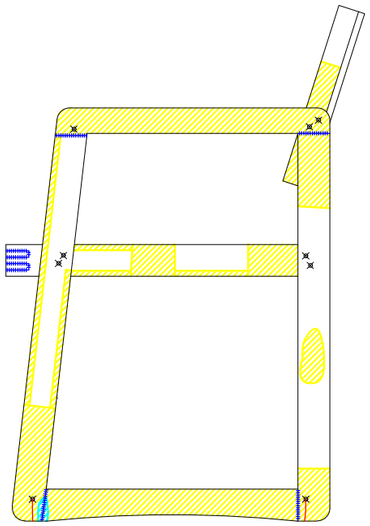
UPPER LEVEL PLAN

BUCKLING CAUSED DUE TO BREAKAGE

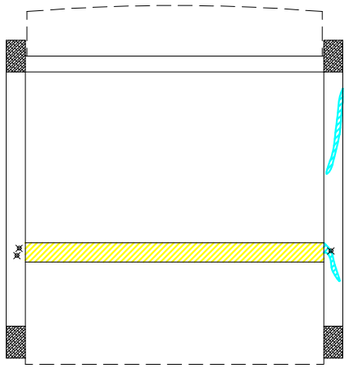
KEY IMAGE



LEFT SIDE ELEVATION



RIGHT SIDE ELEVATION



LOWER LEVEL PLAN

MAJOR CRACKS IN REAR LEFT LEG

LEGEND:

Loss of material	
Cracks	
Loose Joint	
Uneven surface	
Nails	
Termite	
Replacement / New Additions	

KEY PLAN

NOTE: The chair has paint spatter & dirt accumulation in various areas.

DRAWING SCALE: 1:10 (0 20 50 100 150 mm.)

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	1/06/2016

DRAWING NAME:
FURNITURE CONDITION ASSESSMENT
CHAIR TYPE 1 - GS/28

DRAWING NUMBER: GB/CM/F3/03

SERIES: CONDITION MAPPING DRAWING

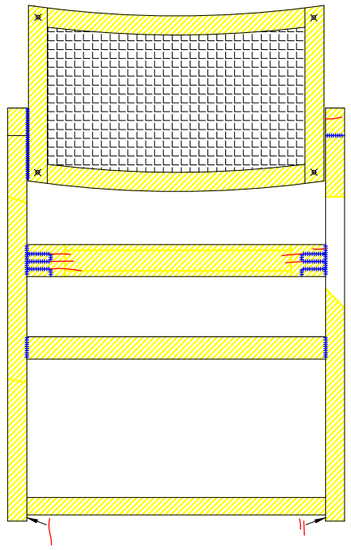
PROJECT:
CONSERVATION PLANNING OF GANDHI BHAWAN P.U.
FUNDED BY THE GETTY FOUNDATION, U.S.A.

CONSULTANT:

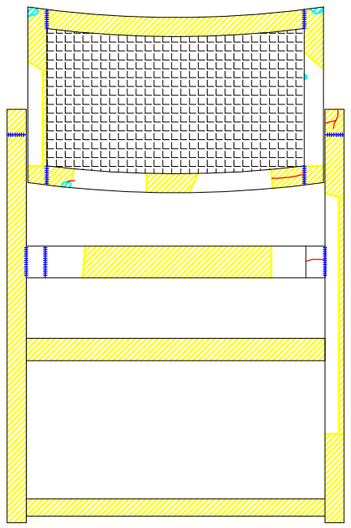
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION OF NATURE ARTS & HERITAGE

A-258 SOUTH CITY-1
GURGAON, 122001

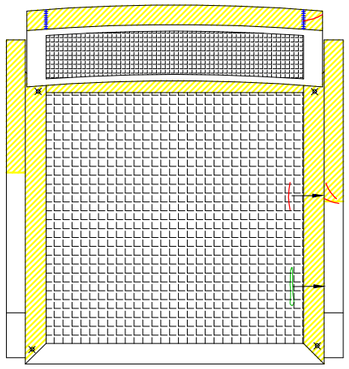
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH



FRONT ELEVATION



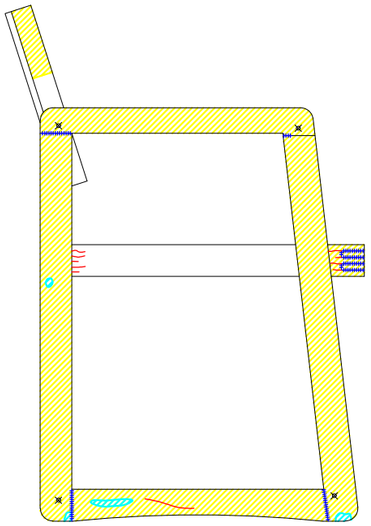
REAR ELEVATION



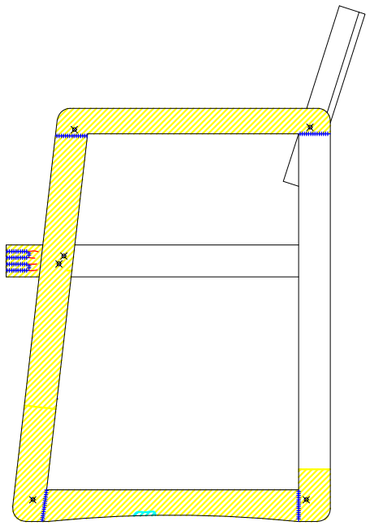
UPPER LEVEL PLAN

MATERIAL LOSS DUE TO TERMITE IN LEFT ARM REST

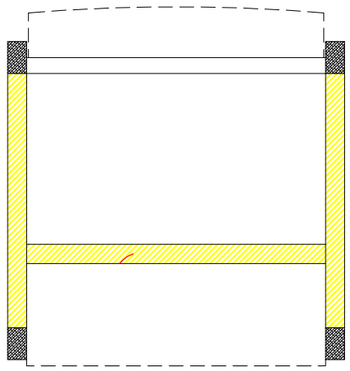
KEY IMAGE



LEFT SIDE ELEVATION



RIGHT SIDE ELEVATION



LOWER LEVEL PLAN

MAJOR CRACKS ON REAR SIDE

LEGEND:

Loss of material	
Cracks	
Loose Joint	
Uneven surface	
Nails	
Termite	
Replacement / New Additions	

KEY PLAN

NOTE: The chair has paint spatter & dirt accumulation in various areas.

DRAWING SCALE: 1:10 (0 20 50 100 150 mm.)

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	1/06/2016

DRAWING NAME:
FURNITURE CONDITION ASSESSMENT
CHAIR TYPE 1 - GS/16

DRAWING NUMBER: GB/CM/F3/04

SERIES: CONDITION MAPPING DRAWING

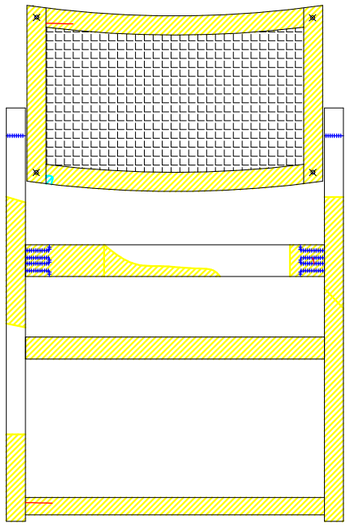
PROJECT:
CONSERVATION PLANNING OF GANDHI BHAWAN P.U.
FUNDED BY THE GETTY FOUNDATION, U.S.A.

CONSULTANT:

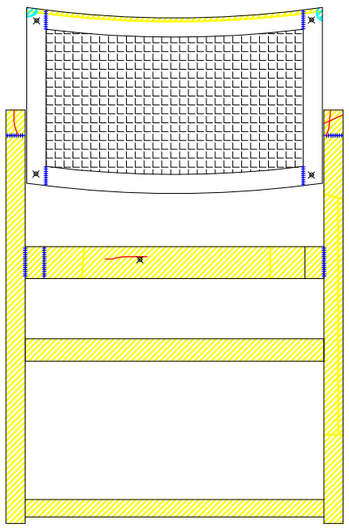
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION OF NATURE ARTS & HERITAGE

A-258 SOUTH CITY-1
GURGAON, 122001

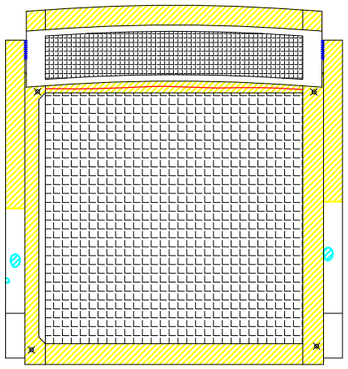
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH



FRONT ELEVATION



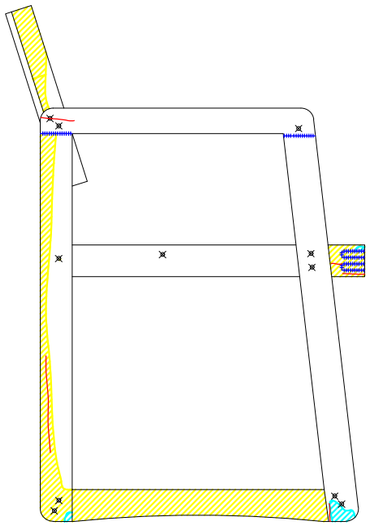
REAR ELEVATION



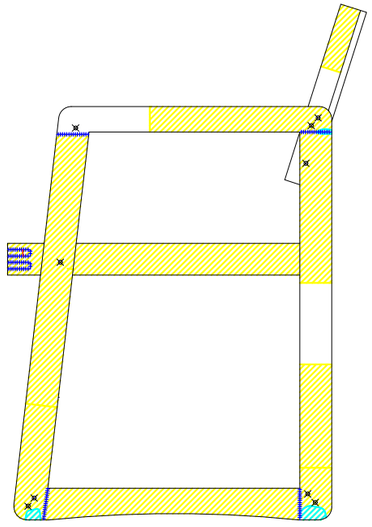
UPPER LEVEL PLAN

CRACKS IN RIGHT ARM REST

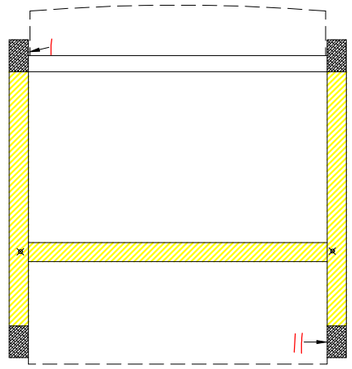
KEY IMAGE



LEFT SIDE ELEVATION



RIGHT SIDE ELEVATION



LOWER LEVEL PLAN

LOOSE JOINT ON FRONT SIDE

LEGEND:

Loss of material	
Cracks	
Loose Joint	
Uneven surface	
Nails	
Termite	
Replacement / New Additions	

KEY PLAN

NOTE: The chair has paint spatter & dirt accumulation in various areas.

DRAWING SCALE: 1:10 0 20 50 100 150 mm.

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	1/06/2016

DRAWING NAME:
FURNITURE CONDITION ASSESSMENT
CHAIR TYPE 1 - GS/5

DRAWING NUMBER: GB/CM/F3/05

SERIES: CONDITION MAPPING DRAWING

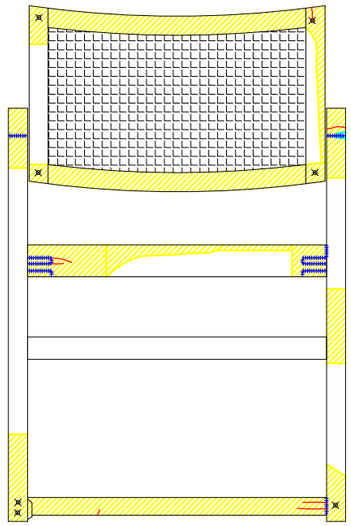
PROJECT:
CONSERVATION PLANNING OF GANDHI BHAWAN P.U.
FUNDED BY THE GETTY FOUNDATION, U.S.A.

CONSULTANT:

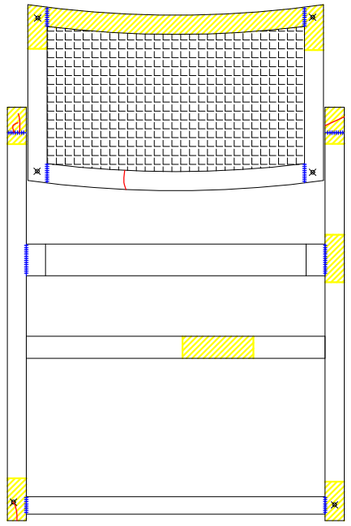
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION OF NATURE ARTS & HERITAGE

A-258 SOUTH CITY-1
GURGAON, 122001

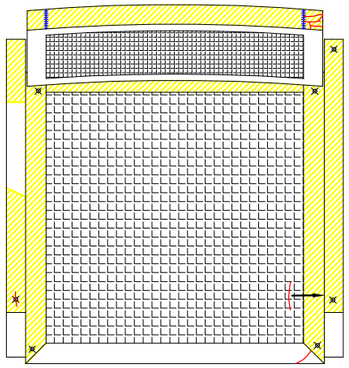
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH



FRONT ELEVATION



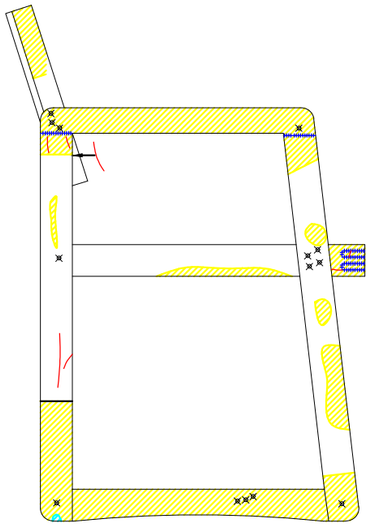
REAR ELEVATION



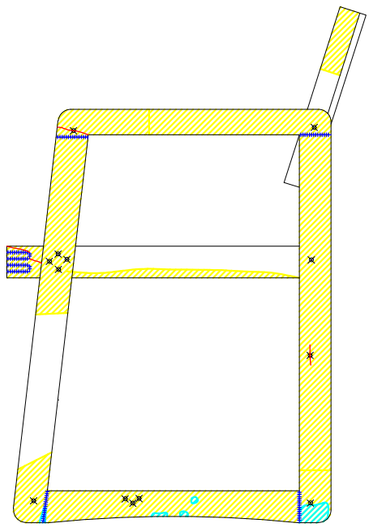
UPPER LEVEL PLAN

CRACKS IN LEFT ARM REST

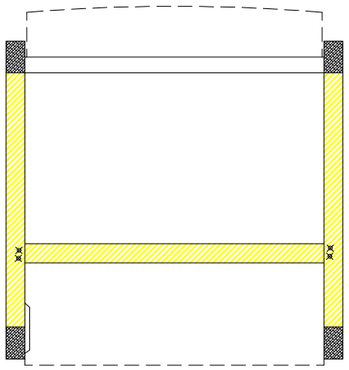
KEY IMAGE



LEFT SIDE ELEVATION



RIGHT SIDE ELEVATION



LOWER LEVEL PLAN

NEW ADDITION / INAPPROPRIATE REPAIR

LEGEND:

Loss of material	
Cracks	
Loose Joint	
Uneven surface	
Nails	
Termite	
Replacement / New Additions	

KEY PLAN

NOTE: The chair has paint spatter & dirt accumulation in various areas.

DRAWING SCALE: 1:10 (0 20 50 100 150 mm.)

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	1/06/2016

DRAWING NAME:
FURNITURE CONDITION ASSESSMENT
CHAIR TYPE 1 - GS/26

DRAWING NUMBER: GB/CM/F3/06

SERIES: CONDITION MAPPING DRAWING

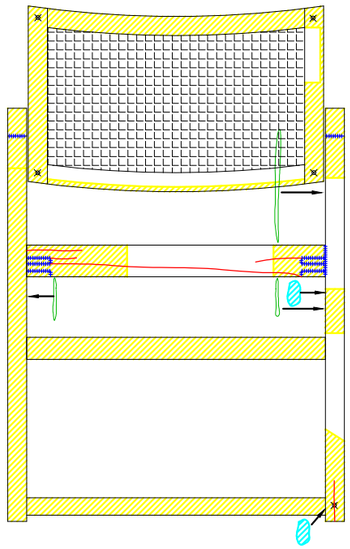
PROJECT:
CONSERVATION PLANNING OF GANDHI BHAWAN P.U.
FUNDED BY THE GETTY FOUNDATION, U.S.A.

CONSULTANT:

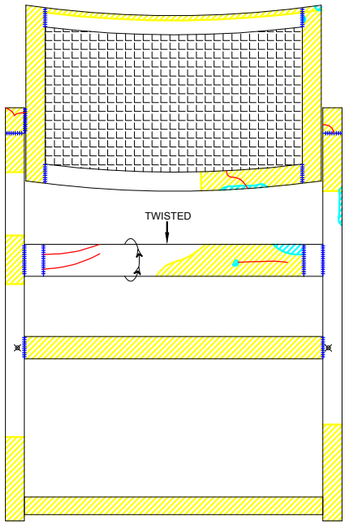
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION OF NATURE ARTS & HERITAGE

A-258 SOUTH CITY-1
GURGAON, 122001

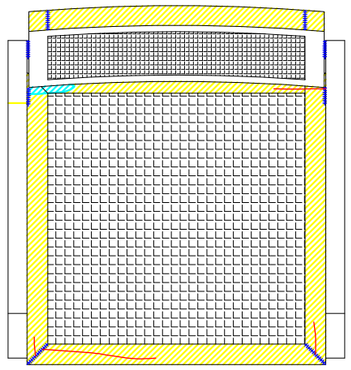
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH



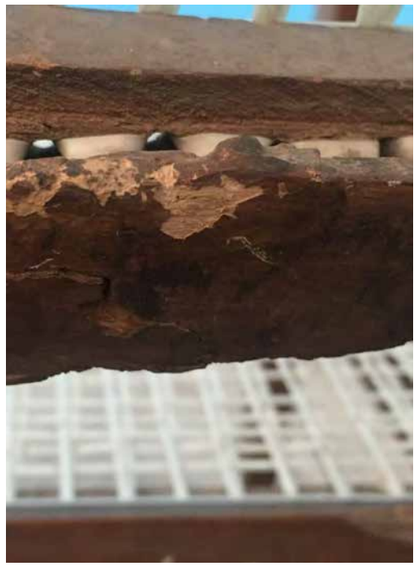
FRONT ELEVATION



REAR ELEVATION

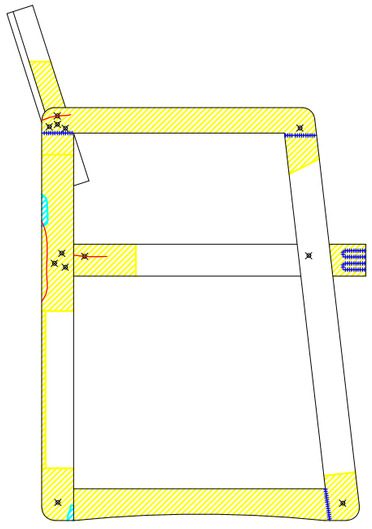


UPPER LEVEL PLAN

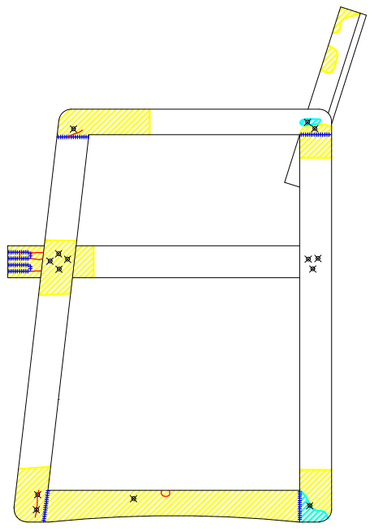


UNEVEN SURFACE AT REAR SIDE OF BACK REST

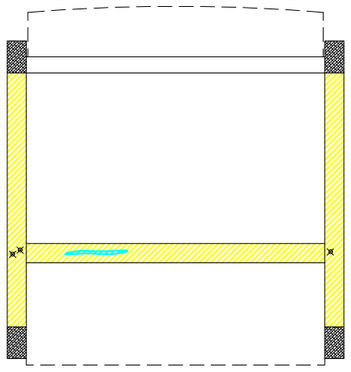
KEY IMAGE



LEFT SIDE ELEVATION



RIGHT SIDE ELEVATION



LOWER LEVEL PLAN

TWISTED MEMBER WITH CRACKS ON REAR SIDE

LEGEND:

Loss of material	
Cracks	
Loose Joint	
Uneven surface	
Nails	
Termite	
Replacement / New Additions	

KEY PLAN

NOTE: The chair has paint spatter & dirt accumulation in various areas.

DRAWING SCALE: 1:10 (0 20 50 100 150 mm.)

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	1/06/2016

DRAWING NAME:
FURNITURE CONDITION ASSESSMENT
CHAIR TYPE 1 - GS/14

DRAWING NUMBER: GB/CM/F3/07

SERIES: CONDITION MAPPING DRAWING

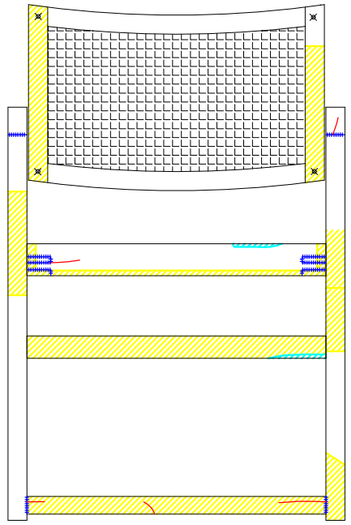
PROJECT:
CONSERVATION PLANNING OF GANDHI BHAWAN P.U.
FUNDED BY THE GETTY FOUNDATION, U.S.A.

CONSULTANT:

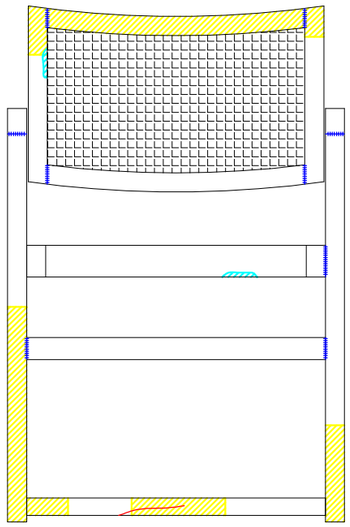
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION OF NATURE ARTS & HERITAGE

A-258 SOUTH CITY-1
GURGAON, 122001

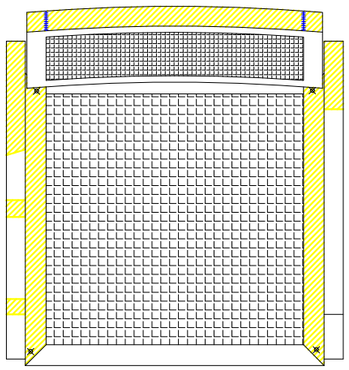
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH



FRONT ELEVATION



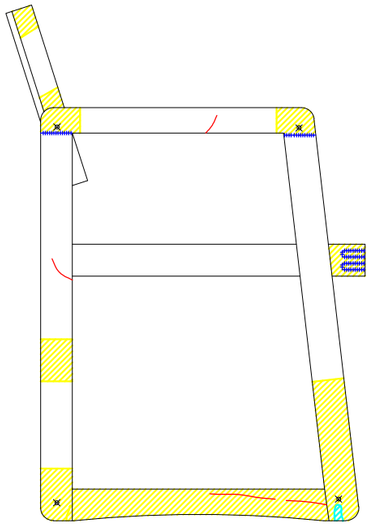
REAR ELEVATION



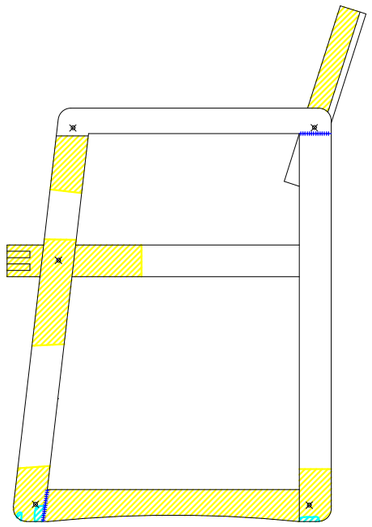
UPPER LEVEL PLAN

LOOSE JOINT ON FRONT SIDE

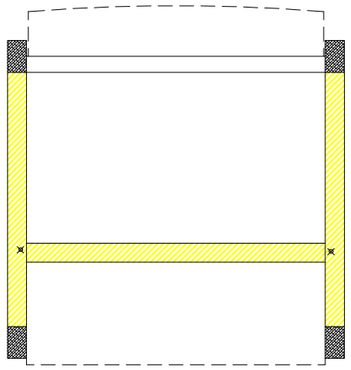
KEY IMAGE



LEFT SIDE ELEVATION



RIGHT SIDE ELEVATION



LOWER LEVEL PLAN

MATERIAL LOSS ON RIGHT LEG

LEGEND:

Loss of material	
Cracks	
Loose Joint	
Uneven surface	
Nails	
Termite	
Replacement / New Additions	

KEY PLAN

NOTE: The chair has paint spatter & dirt accumulation in various areas.

DRAWING SCALE: 1:10 (0 20 50 100 150 mm.)

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	1/06/2016

DRAWING NAME:
FURNITURE CONDITION ASSESSMENT
CHAIR TYPE 1 - GS/15

DRAWING NUMBER: GB/CM/F3/08

SERIES: CONDITION MAPPING DRAWING

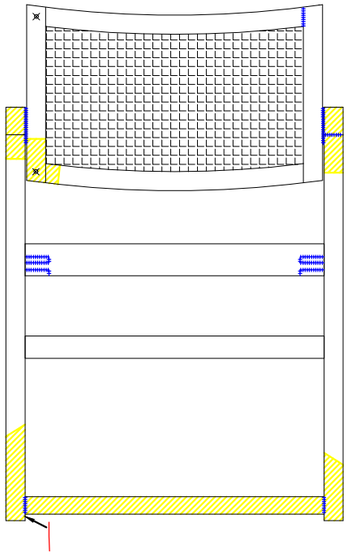
PROJECT:
CONSERVATION PLANNING OF GANDHI BHAWAN P.U.
FUNDED BY THE GETTY FOUNDATION, U.S.A.

CONSULTANT:

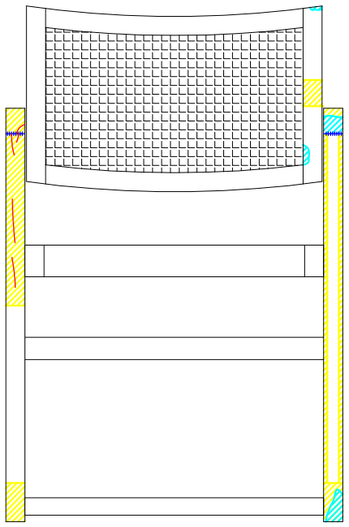
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION OF NATURE ARTS & HERITAGE

A-258 SOUTH CITY-1
GURGAON, 122001

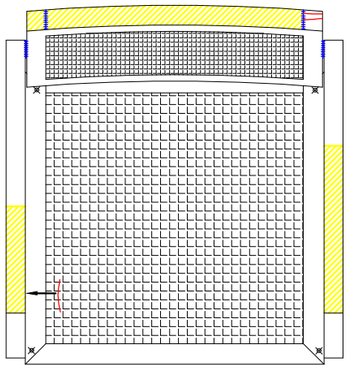
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH



FRONT ELEVATION



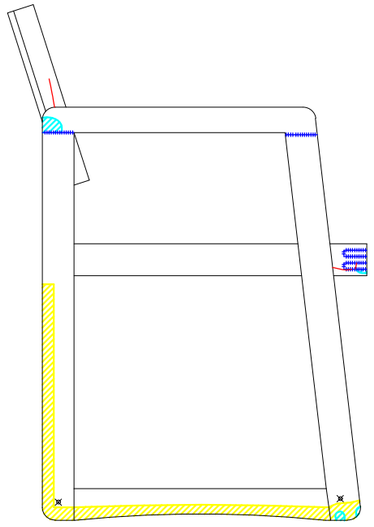
REAR ELEVATION



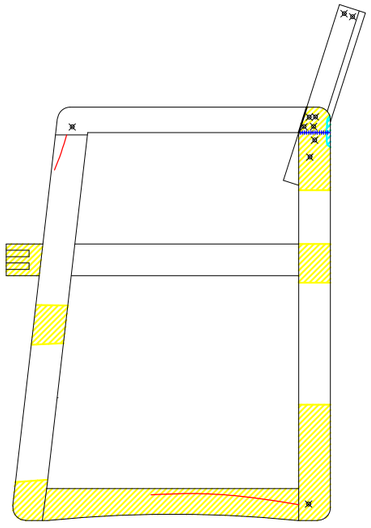
UPPER LEVEL PLAN

CHANGED MEMBER ON BACK REST

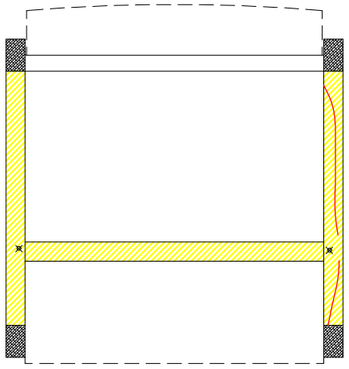
KEY IMAGE



LEFT SIDE ELEVATION



RIGHT SIDE ELEVATION



LOWER LEVEL PLAN

MATERIAL LOSS ON RIGHT ARM REST

LEGEND:

Loss of material	
Cracks	
Loose Joint	
Uneven surface	
Nails	
Termite	
Replacement / New Additions	

KEY PLAN

NOTE: The chair has paint spatter & dirt accumulation in various areas.

DRAWING SCALE: 1:10 (0 20 50 100 150 mm.)

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	1/06/2016

DRAWING NAME:
FURNITURE CONDITION ASSESSMENT
CHAIR TYPE 1 - GS/45

DRAWING NUMBER: GB/CM/F3/09

SERIES: CONDITION MAPPING DRAWING

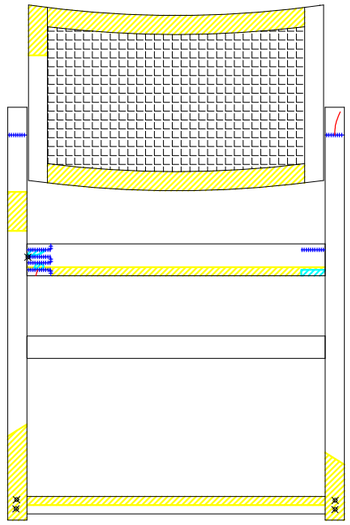
PROJECT:
CONSERVATION PLANNING OF GANDHI BHAWAN P.U.
FUNDED BY THE GETTY FOUNDATION, U.S.A.

CONSULTANT:

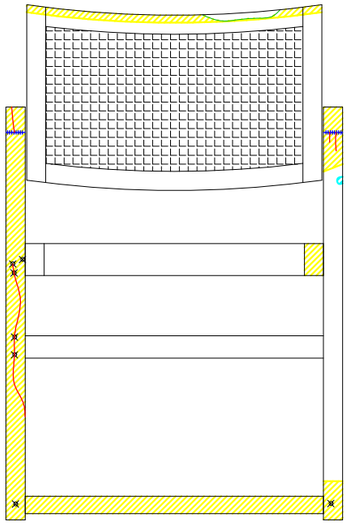
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION OF NATURE ARTS & HERITAGE

A-258 SOUTH CITY-1
GURGAON, 122001

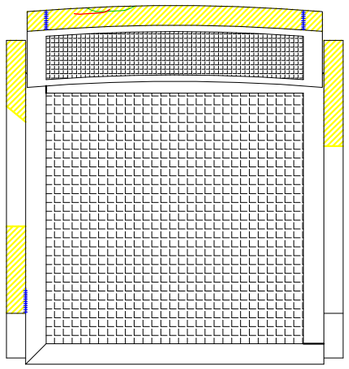
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH



FRONT ELEVATION



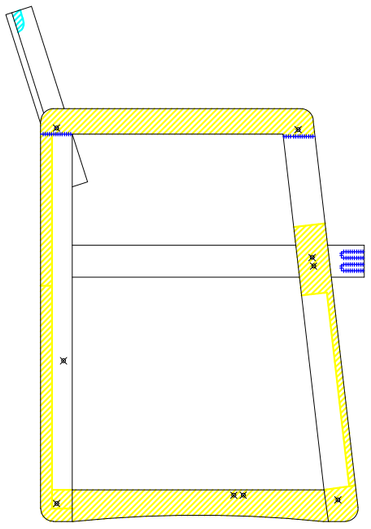
REAR ELEVATION



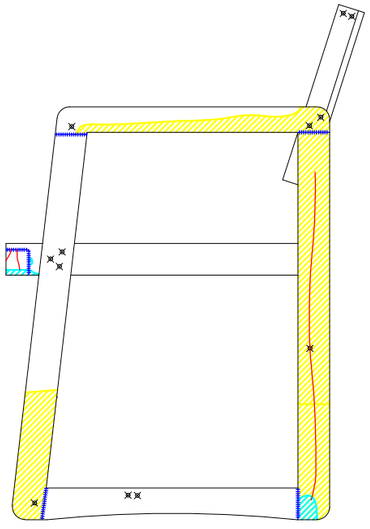
UPPER LEVEL PLAN

MATERIAL LOSS DUE TO TERMITE ON BACK REST

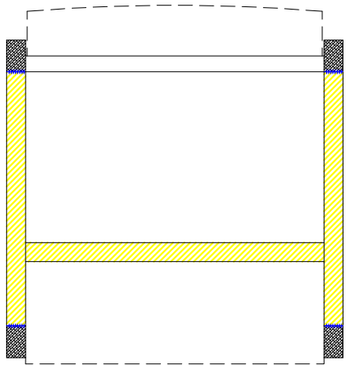
KEY IMAGE



LEFT SIDE ELEVATION



RIGHT SIDE ELEVATION



LOWER LEVEL PLAN

INAPPROPRIATE REPAIR WORK

LEGEND:

Loss of material	
Cracks	
Loose Joint	
Uneven surface	
Nails	
Termite	
Replacement / New Additions	

KEY PLAN

NOTE: The chair has paint spatter & dirt accumulation in various areas.

DRAWING SCALE: 1:10 (0 20 50 100 150 mm.)

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	1/06/2016

DRAWING NAME:

FURNITURE CONDITION ASSESSMENT
CHAIR TYPE 1 - GS/11

DRAWING NUMBER: GB/CM/F3/10

SERIES: CONDITION MAPPING DRAWING

PROJECT:

CONSERVATION PLANNING OF GANDHI BHAWAN P.U.
FUNDED BY THE GETTY FOUNDATION, U.S.A.

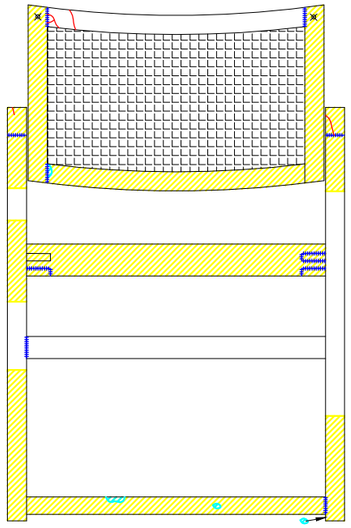
CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION OF NATURE ARTS & HERITAGE

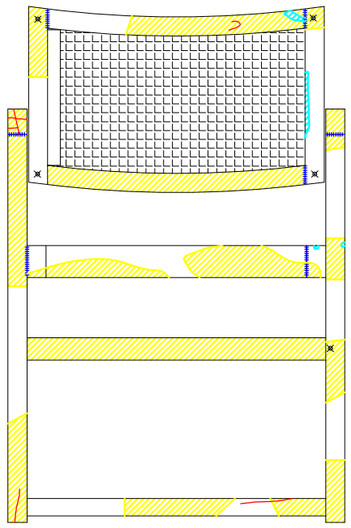
A-258 SOUTH CITY-1
GURGAON, 122001

CLIENT:

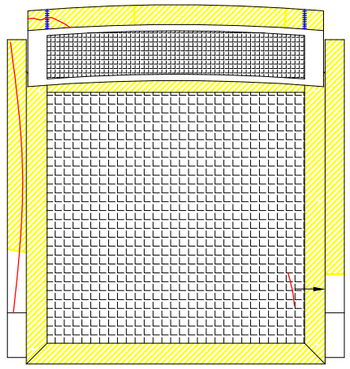
PANJAB UNIVERSITY, CHANDIGARH



FRONT ELEVATION



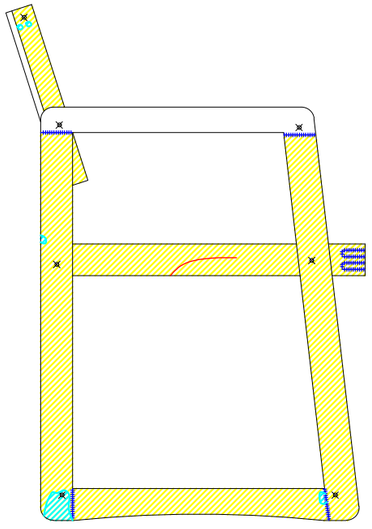
REAR ELEVATION



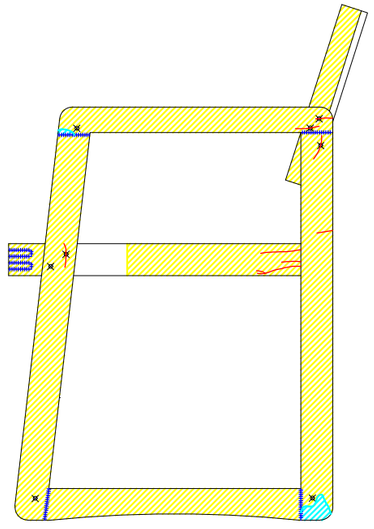
UPPER LEVEL PLAN

MATERIAL LOSS DUE TO TERMITE ON BACK REST

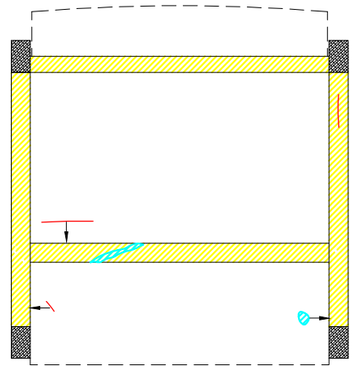
KEY IMAGE



LEFT SIDE ELEVATION



RIGHT SIDE ELEVATION



LOWER LEVEL PLAN

INAPPROPRIATE REPAIR WORK

LEGEND:

Loss of material	
Cracks	
Loose Joint	
Uneven surface	
Nails	
Termite	
Replacement / New Additions	

KEY PLAN

NOTE: The chair has paint spatter & dirt accumulation in various areas.

DRAWING SCALE: 1:10 (0 20 50 100 150 mm.)

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	1/06/2016

DRAWING NAME:
FURNITURE CONDITION ASSESSMENT
CHAIR TYPE 1 - GS/24

DRAWING NUMBER: GB/CM/F3/11

SERIES: CONDITION MAPPING DRAWING

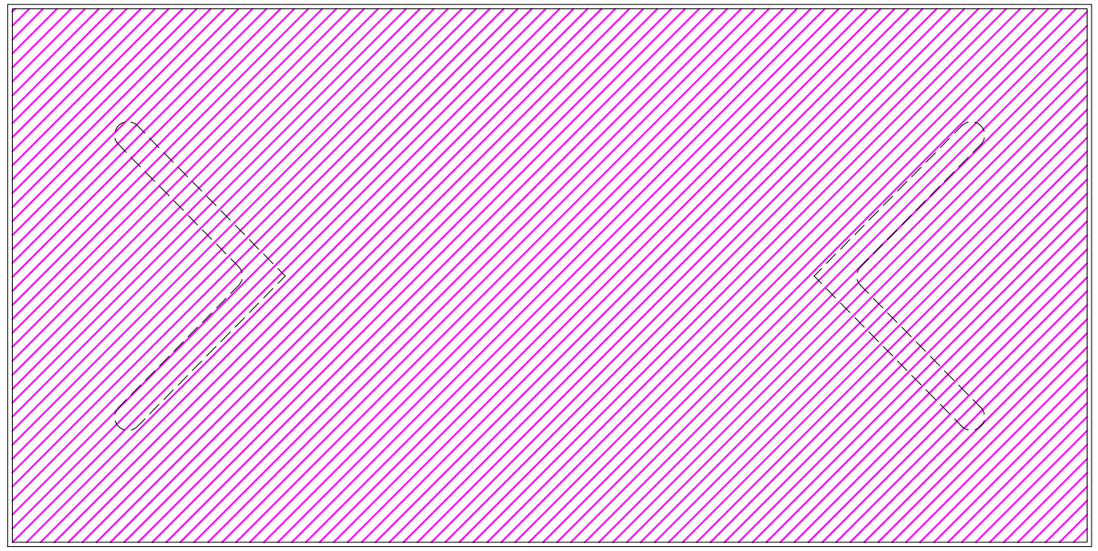
PROJECT:
CONSERVATION PLANNING OF GANDHI BHAWAN P.U.
FUNDED BY THE GETTY FOUNDATION, U.S.A.

CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION OF NATURE ARTS & HERITAGE

A-258 SOUTH CITY-1
GURGAON, 122001

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

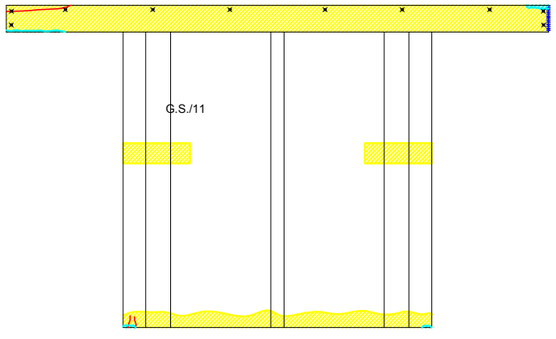


PLAN

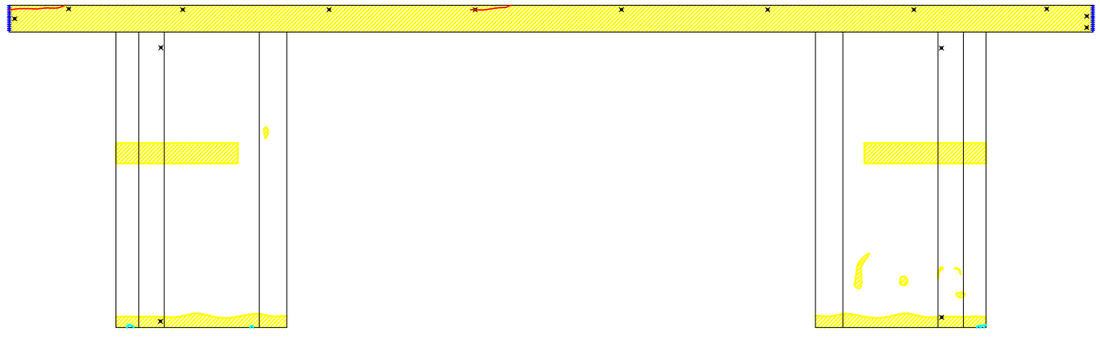
KEY IMAGE

VENEER DISINTEGRATING FROM BOTTOM EDGE

SURFACE ABERRATION

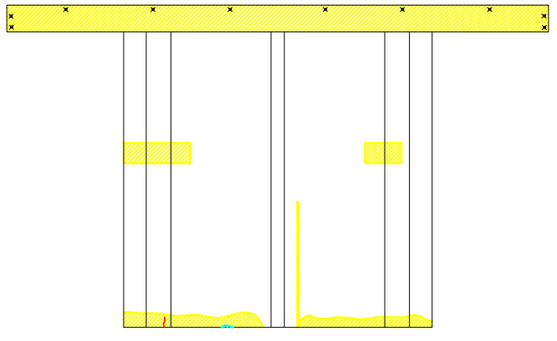


LEFT SIDE ELEVATION



FRONT ELEVATION

REAR ELEVATION



RIGHT SIDE ELEVATION

LEGEND:

Loss of material	
Cracks	
Joint openings	
Uneven surface	
Nails	
Termite Loss	
Replacement / New Additions	

KEY PLAN

NOTE: The Furniture has paint & dust accumulation in various areas

DRAWING SCALE: 1:10

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	11.06.2016

DRAWING NAME:
FURNITURE CONDITION ASSESSMENT
TABLE - G.S./11

DRAWING NUMBER: GB/CM/F4/01

SERIES: CONDITION MAPPING DRAWINGS

PROJECT:

CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

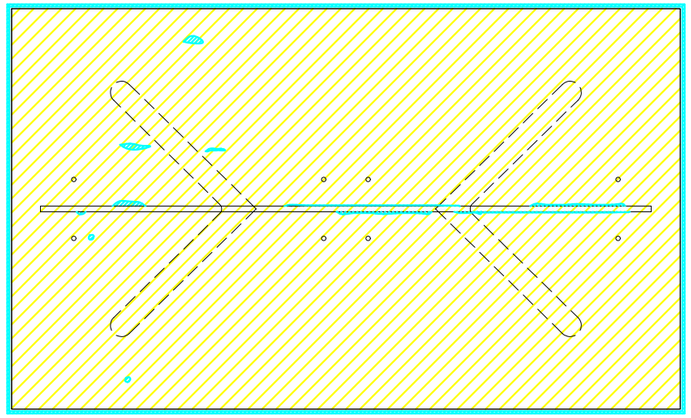
CLIENT:

PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001

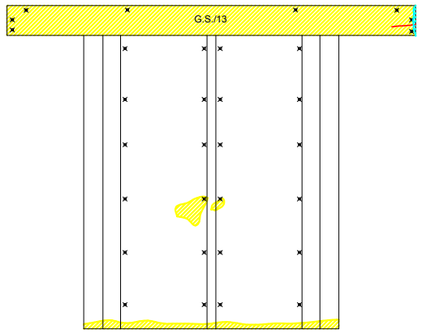


PLAN

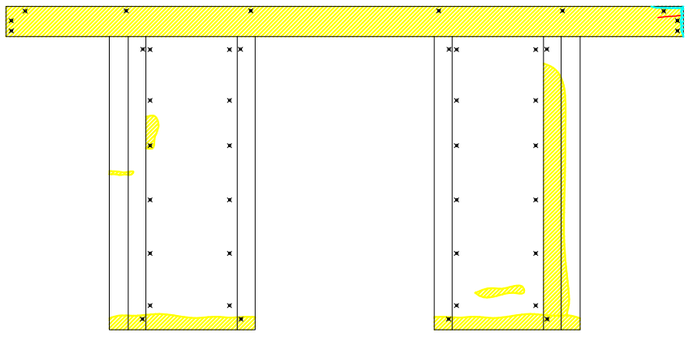
KEY IMAGE

PAINT SPATTER & SURFACE ISSUES

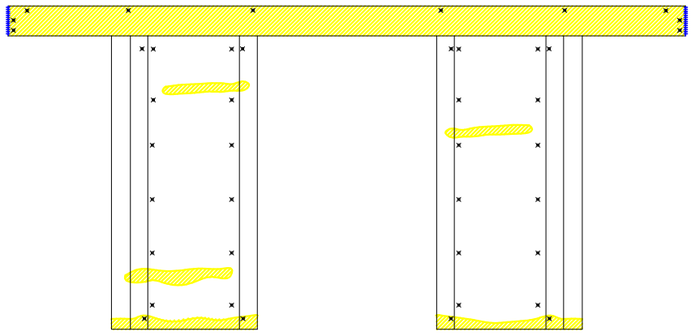
MATRERIAL LOSS



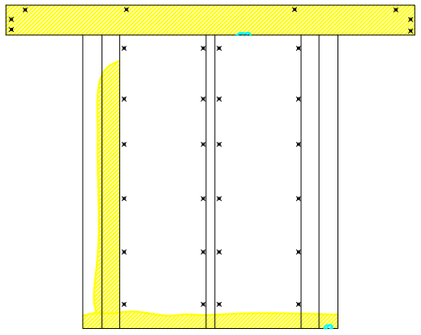
LEFT SIDE ELEVATION



FRONT ELEVATION



REAR ELEVATION



RIGHT SIDE ELEVATION

LEGEND:

Loss of material	
Cracks	
Joint openings	
Uneven surface	
Nails	
Termite Loss	
Replacement / New Additions	

KEY PLAN

NOTE: The Furniture has paint & dust accumulation in various areas

DRAWING SCALE: 1:10

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	11.06.2016

DRAWING NAME:
FURNITURE CONDITION ASSESSMENT
TABLE - G.S./13

DRAWING NUMBER: GB/CM/F4/02

SERIES: CONDITION MAPPING DRAWINGS

PROJECT:

CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

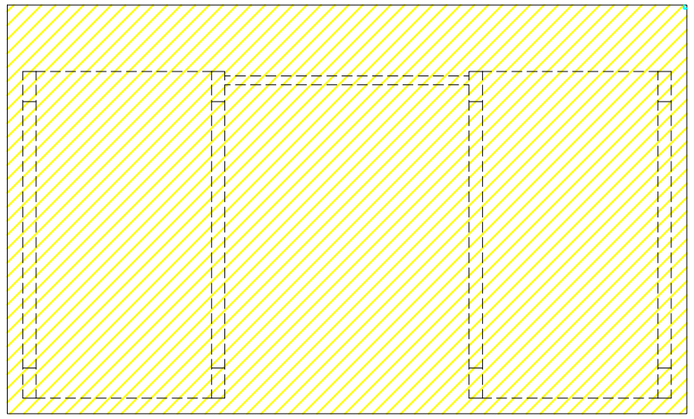
CLIENT:

PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001

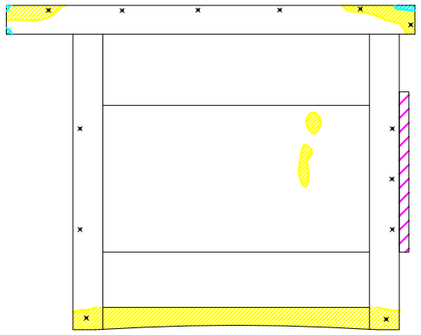


PLAN

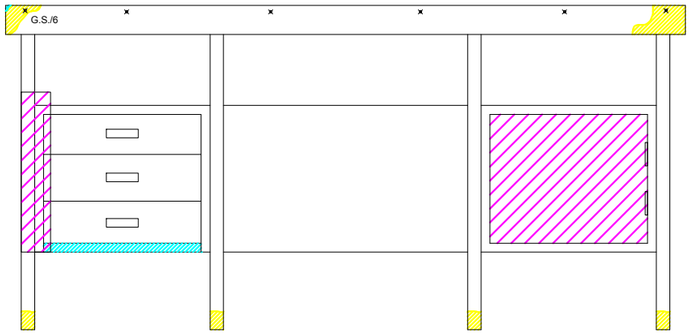
KEY IMAGE

MISSING PARTS & LATER ADDITIONS

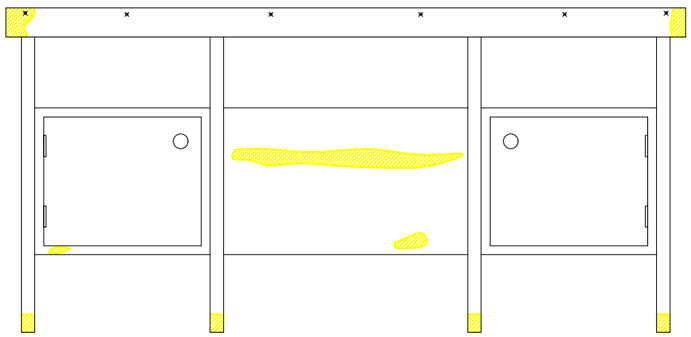
SURFACE VENEER DISINTEGRATING



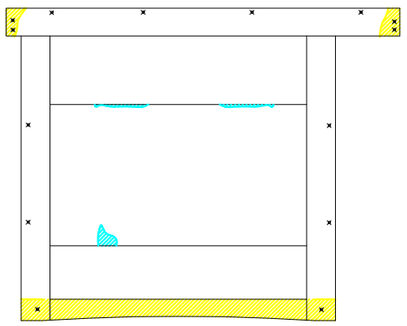
LEFT SIDE ELEVATION



FRONT ELEVATION



REAR ELEVATION



RIGHT SIDE ELEVATION

LEGEND:

Loss of material	
Cracks	
Joint openings	
Uneven surface	
Nails	
Termite Loss	
Replacement / New Additions	

KEY PLAN

NOTE: The Furniture has paint & dust accumulation in various areas

DRAWING SCALE: 1:10

DRAWN BY:	CHECKED BY:	DATED:
RAVI SANDHU	VANICKA ARORA	21.06.2016

DRAWING NAME:
FURNITURE CONDITION ASSESSMENT
TABLE - G.S./6

DRAWING NUMBER: GB/CM/F4/03

SERIES: CONDITION MAPPING DRAWINGS

PROJECT:

CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

CLIENT:

PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001

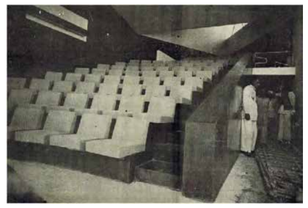
4. CONSERVATION PROPOSAL DRAWINGS

INSTALLATION OF PROJECTOR SCREEN

REMOVAL OF STAINLESS RAILING

STAGE FLOORING TO BE RE-DONE IN BLACK TERRAZZO FINISH AS PER ITS ORIGINAL FROM

RESECURING AUDITORIUM CHAIRS AS PER ORIGINAL



REPAIR OF SCUPTURAL LIGHT

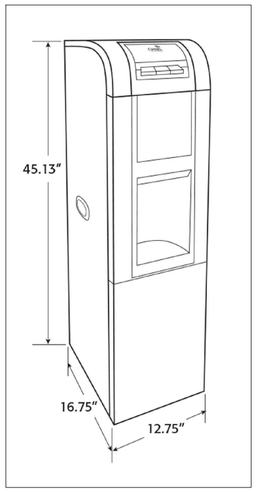
UP GRADATION OF TOILETS

MOTORIZED ROLLER BLINDS WITH AEROLUX HEAVY DUTY MOTOR TO BE INSTALLED AS PER APPROVED COLOR

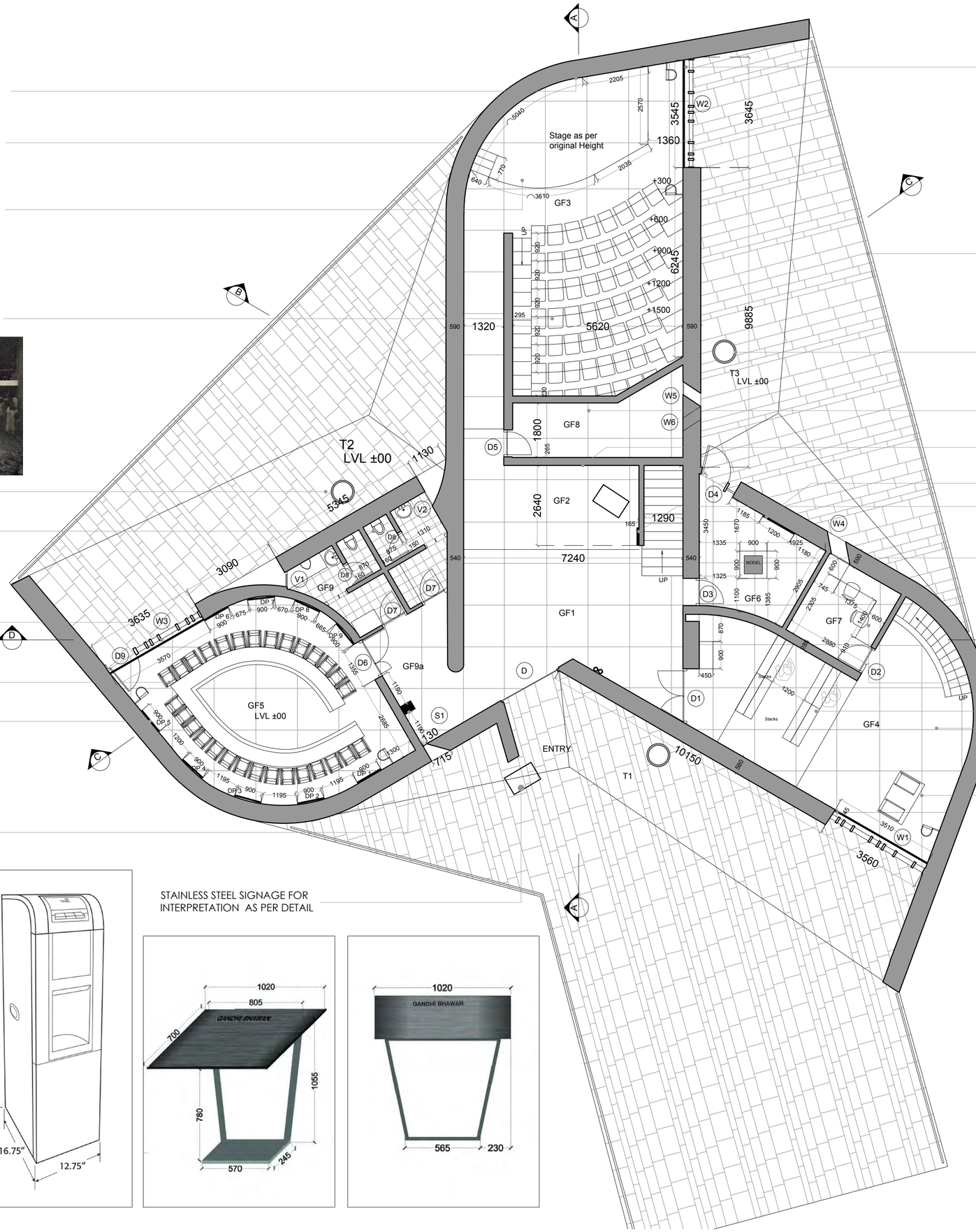
RESECURING COMMITTEE ROOM CHAIRS

900MM X 1200MM INTERPRETATION DISPLAY PANELS

OASIS AQUA BAR II WATER COOLER WITH CARBAN FIBRE LOOK PANEL D-625MM, W- 325MM, H- 1145MM



STAINLESS STEEL SIGNAGE FOR INTERPRETATION AS PER DETAIL



MOTORIZED ROLLER BLINDS WITH AEROLUX HEAVY DUTY MOTOR TO BE INSTALLED AS PER APPROVED COLOR & SIZE

REMOVAL OF STAINLESS STEEL RAILING

REPAIR OF SCULPTURE LIGHT

REDO THE FLOORING AS PER ORIGINAL

MURAL CONSERVATION IN CONSULTATION WITH SATISH GUJRAL

INTERACTIVE DISPLAY PANEL

CLEANING & RE-USE OF EXISTING SIGNAGE

GANDHI BHAWAN MODEL DISPLAY 600MM X600MM

SPACE FOR DIGITAL LIBRARY

LIBRARY STACKS

READING SECTION

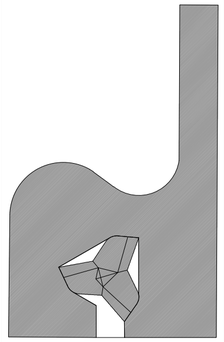
RESTORE & RE-USE LIBRARIAN DESK

LEGEND

S.NO.	USE & RE-USE
GF1.	Entrance Lobby
GF2.	Exhibition
GF3.	Lecture Hall
GF4.	Library
GF5.	Seminar Room
GF6.	Interpretation Room
GF7.	Research Council
GF8.	Store
GF9.	Lavatory/Toilets
T1.	Terrace 1
T2.	Terrace 2
T3.	Terrace 3
MF1.	Mezz. Lecture Hall
MF2.	Stacks
MF3.	Alcove
MF4.	Store

NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)



KEY PLAN

DRAWING SCALE: 1:100

GRAPHIC SCALE:

0M 2M 4M

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	27.09.2016

DRAWING NAME:
G.F.LAYOUT PLAN INDICATION INTERPRETATION &RE-USE

DRAWING NUMBER: GB/CP/P-01

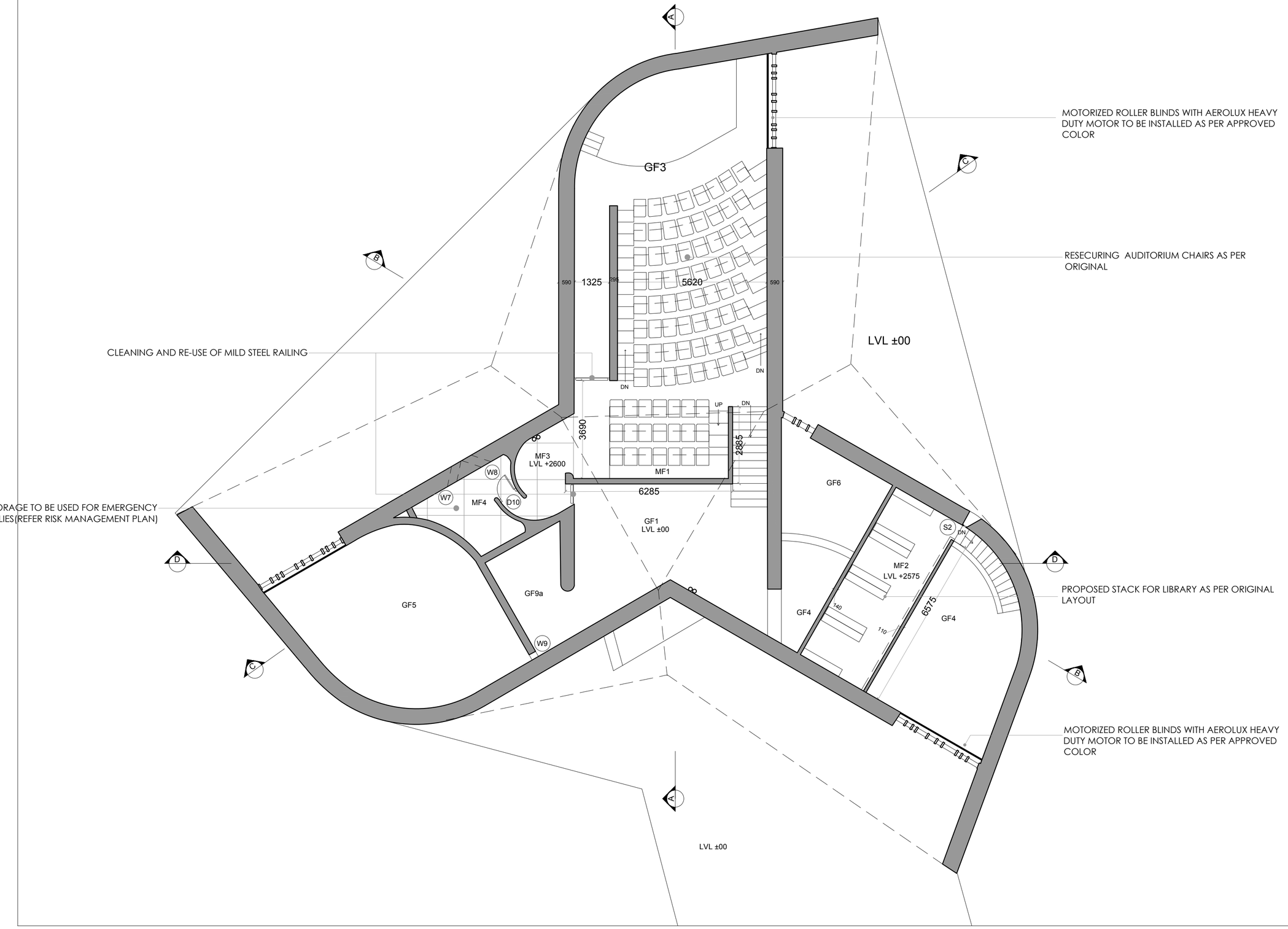
SERIES: PROPOSAL DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

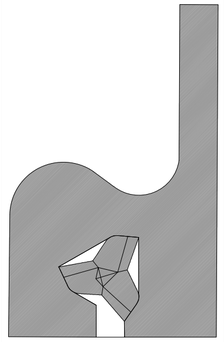
CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)



KEY PLAN

DRAWING SCALE: 1:100

GRAPHIC SCALE:

0M 2M 4M

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	27.09.2016

DRAWING NAME:
M.F.LAYOUT PLAN INDICATION INTERPRETATION &RE-USE

DRAWING NUMBER: GB/MD/P-01

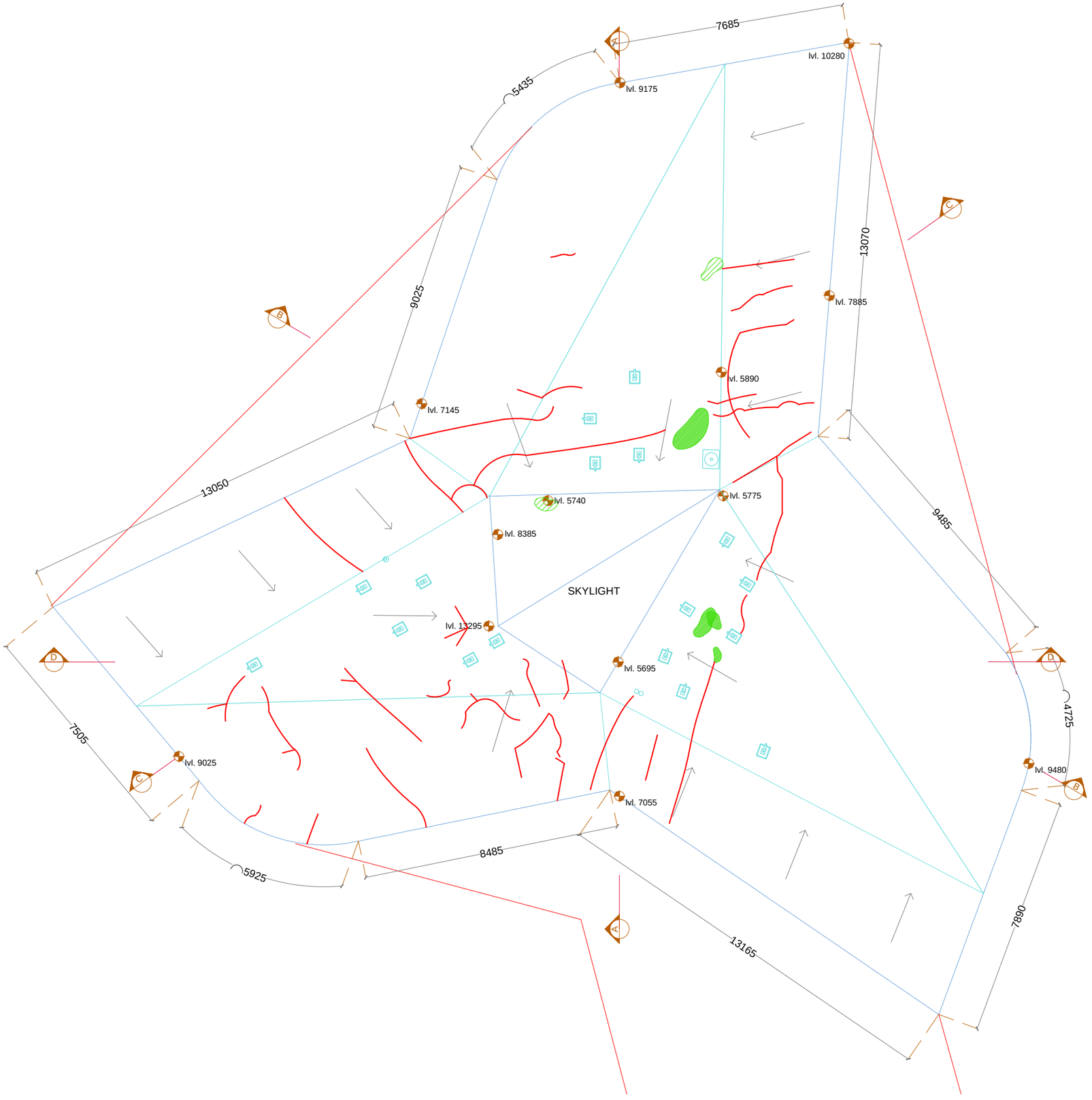
SERIES: PROPOSAL DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

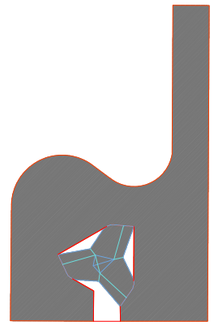
CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



NOTES

1. Clean the roof of debris and dirt before, during and after rainy season
2. All the down pipes should be free of debris and should be checked periodically so water doesn't stagnate due to blocked pipes.
3. Finished water proofing layer should be monitored for further deterioration. If this finish layer appears to be failing during periodic monitoring it should be immediately brought to the attention of the authorities.
4. Cracks should be monitored and authorities notified if they become wider and could possibly trap water.
5. New water proofing should be applied after removing the existing layer if the existing finish fails or if the cracks become large. During the time of this new application, proper investigations on how the roof is constructed and its conditions should to be carried Out. The decision for the new one should be based on the findings of the investigations and a compatible solution should be devised



KEY PLAN

DRAWING SCALE: 1:100

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	

DRAWING NAME:
ROOF PLAN

DRAWING NUMBER: GB/P/P- 03

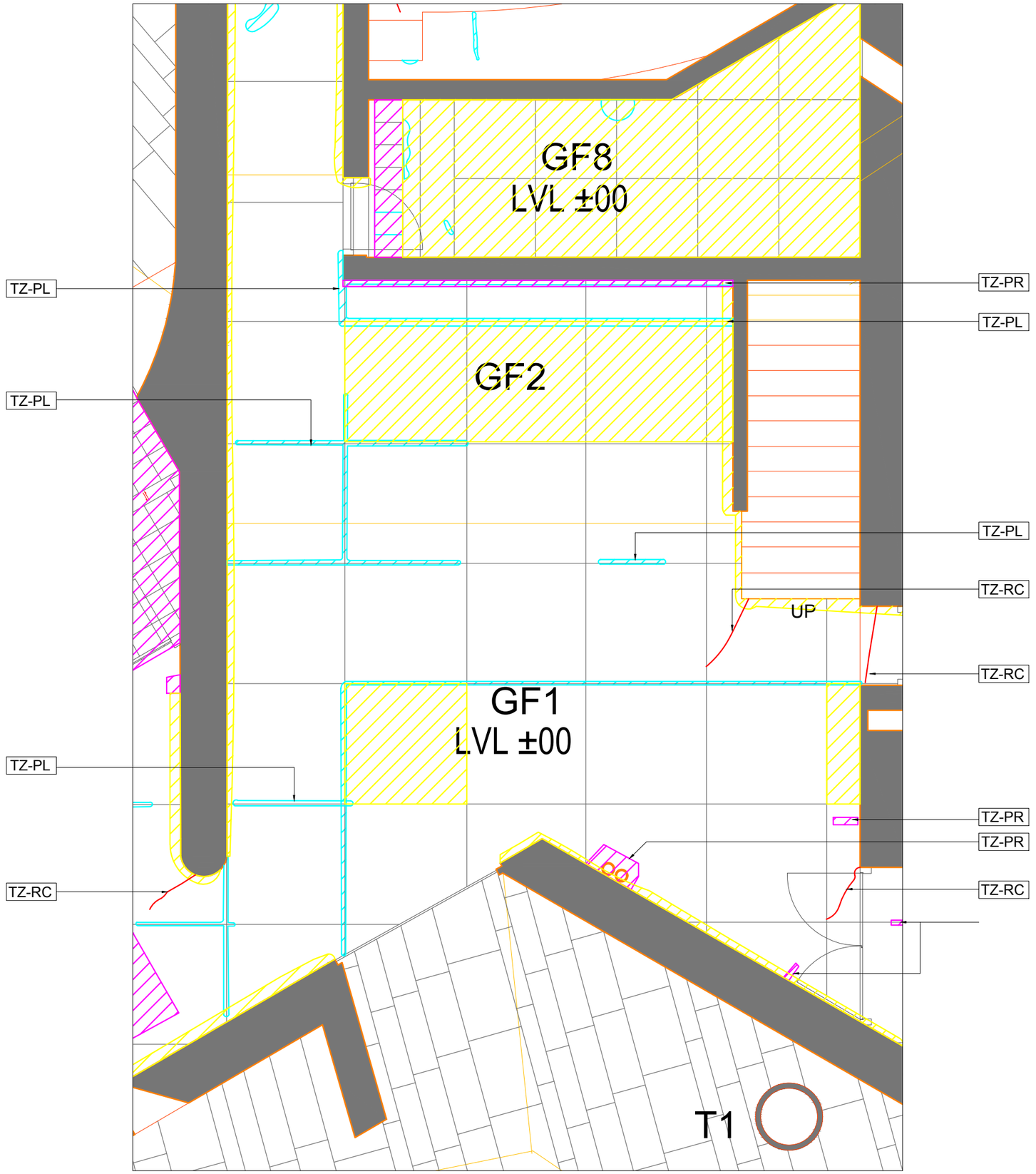
SERIES: PROPOSAL DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



NOTES:

1. All the terrazzo surfaces to be cleaned with detergent or as per item no. ##
2. Termite to be exterminated with pest control (item no.##)
3. All survey carried out through a detail visual inspection of the building and no destructive analysis has been carried out.
4. All dimensions in the drawing are in mm(millimetres) .

LEGEND:

Material Loss	
Cracks	
Stains	
Deposit	
Termite	
Previous Repair/Intervention	

CODE	TREATMENT
TZ-PR	PREVIOUS REPAIR
TZ-RC	REPAIR CRACK
TZ-PL	PATCH LOSS /FILL

KEY PLAN

DRAWING SCALE: 1:10

GRAPHIC SCALE:

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	BHAWANA DANDONA	27.09.2016

DRAWING NAME:
LANDSCAPE PLAN

DRAWING NUMBER: GB/CP/P-01

SERIES: CONSERVATION PROPOSAL

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

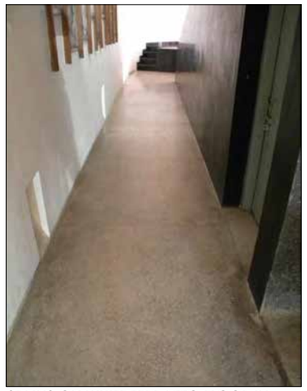
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:

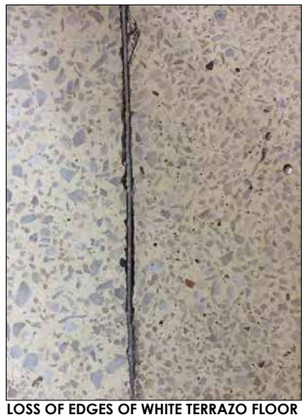
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001

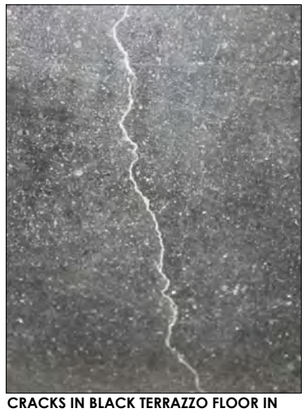
PREVIOUS REPAIR ON STAGE



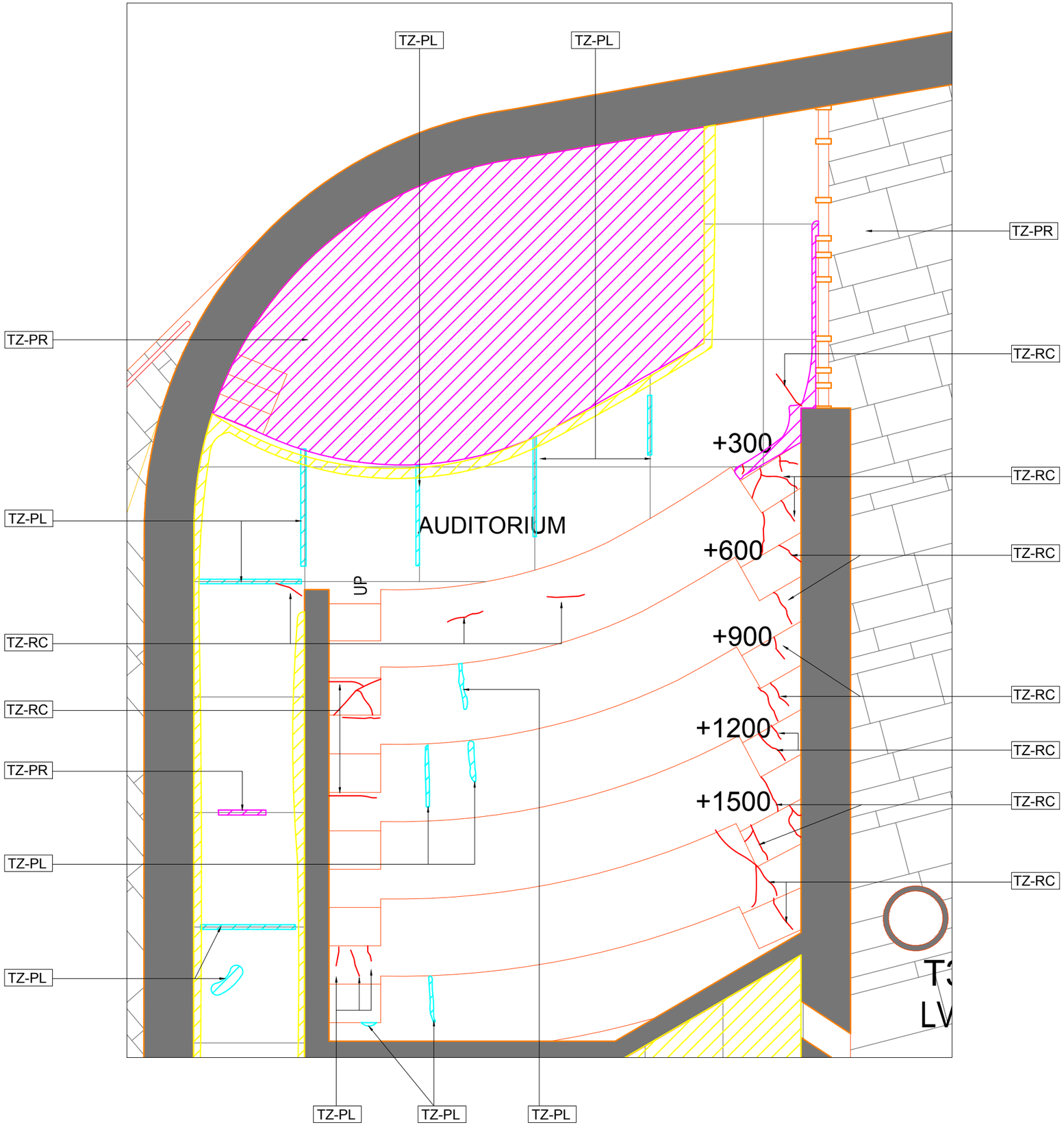
STAINS ON WHITE TERRAZZO FLOOR IN CORRIDOR



LOSS OF EDGES OF WHITE TERRAZO FLOOR



CRACKS IN BLACK TERRAZZO FLOOR IN AUDITORIUM



NOTES:

1. All the terrazzo surfaces to be cleaned with detergent or as per item no. ##
2. Termite to be exterminated with pest control (item no.##)
3. All survey carried out through a detail visual inspection of the building and no destructive analysis has been carried out.
4. All dimensions in the drawing are in mm(millimetres) .

LEGEND:

Material Loss	
Cracks	
Stains	
Deposit	
Termite	
Previous Repair/Intervention	

CODE	TREATMENT
TZ-PR	PREVIOUS REPAIR
TZ-RC	REPAIR CRACK
TZ-PL	PATCH LOSS /FILL

KEY PLAN

DRAWING SCALE: 1:10

GRAPHIC SCALE:

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	BHAWANA DANDONA	27.09.2016

DRAWING NAME:
LANDSCAPE PLAN

DRAWING NUMBER: GB/CP/P-02

SERIES: CONSERVATION PROPOSAL

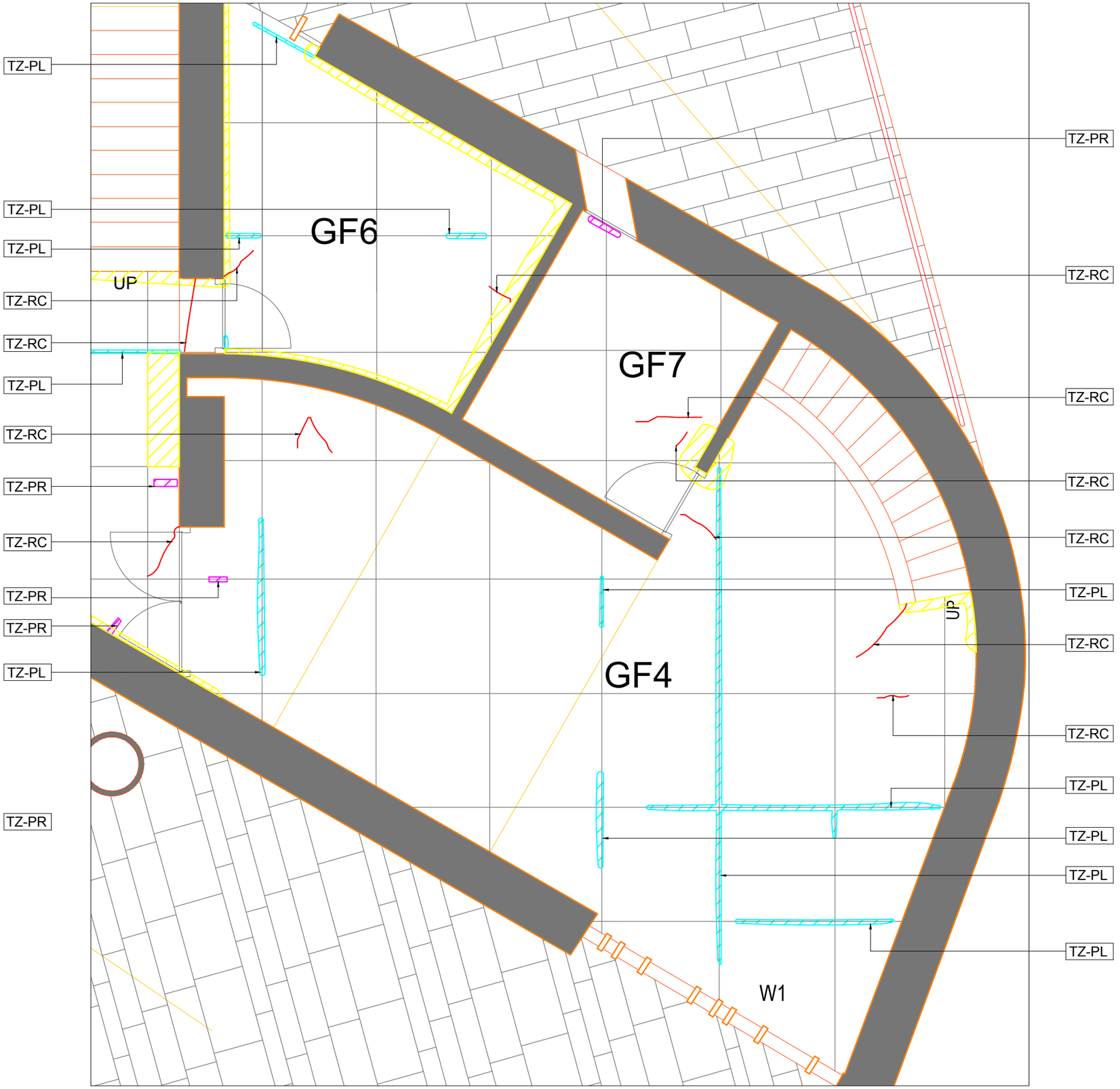
PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



NOTES:

1. All the terrazzo surfaces to be cleaned with detergent or as per item no. ##
2. Termite to be exterminated with pest control (item no.##)
3. All survey carried out through a detail visual inspection of the building and no destructive analysis has been carried out.
4. All dimensions in the drawing are in mm(millimetres) .

LEGEND:

Material Loss	
Cracks	
Stains	
Deposit	
Termite	
Previous Repair/Intervention	

CODE	TREATMENT
TZ-PR	PREVIOUS REPAIR
TZ-RC	REPAIR CRACK
TZ-PL	PATCH LOSS /FILL

KEY PLAN

DRAWING SCALE: 1:10

GRAPHIC SCALE:

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	BHAWANA DANDONA	27.09.2016

DRAWING NAME:
LANDSCAPE PLAN

DRAWING NUMBER: GB/CP/P-03

SERIES: CONSERVATION PROPOSAL

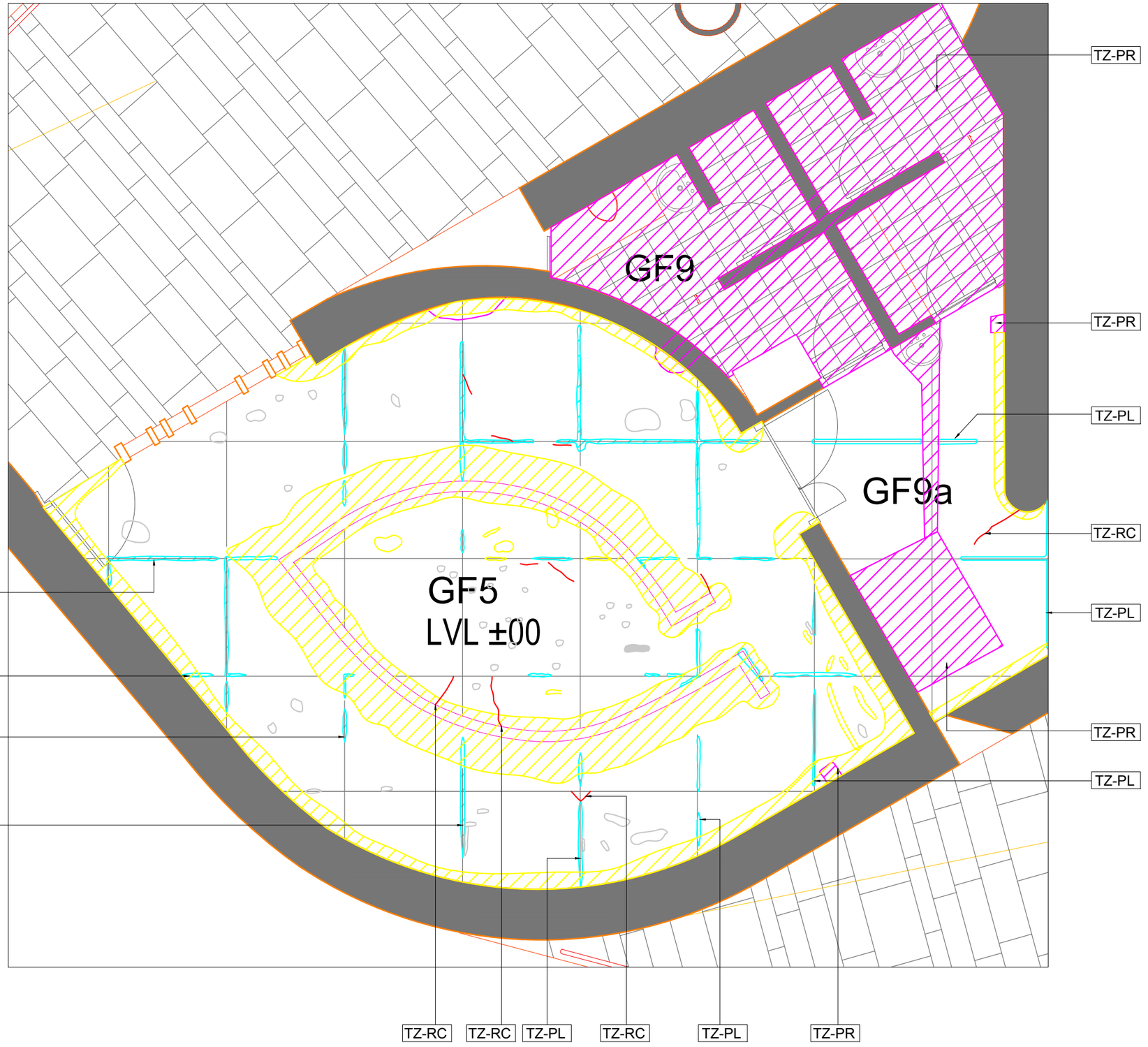
PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



NOTES:

1. All the terrazzo surfaces to be cleaned with detergent or as per item no. ##
2. Termite to be exterminated with pest control (item no.##)
3. All survey carried out through a detail visual inspection of the building and no destructive analysis has been carried out.
4. All dimensions in the drawing are in mm(millimetres) .

LEGEND:

Material Loss	
Cracks	
Stains	
Deposit	
Termite	
Previous Repair/Intervention	

CODE	TREATMENT
TZ-PR	PREVIOUS REPAIR
TZ-RC	REPAIR CRACK
TZ-PL	PATCH LOSS /FILL

KEY PLAN

DRAWING SCALE: 1:10

GRAPHIC SCALE:

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	BHAWANA DANDONA	27.09.2016

DRAWING NAME:
LANDSCAPE PLAN

DRAWING NUMBER: GB/CP/P-04

SERIES: CONSERVATION PROPOSAL

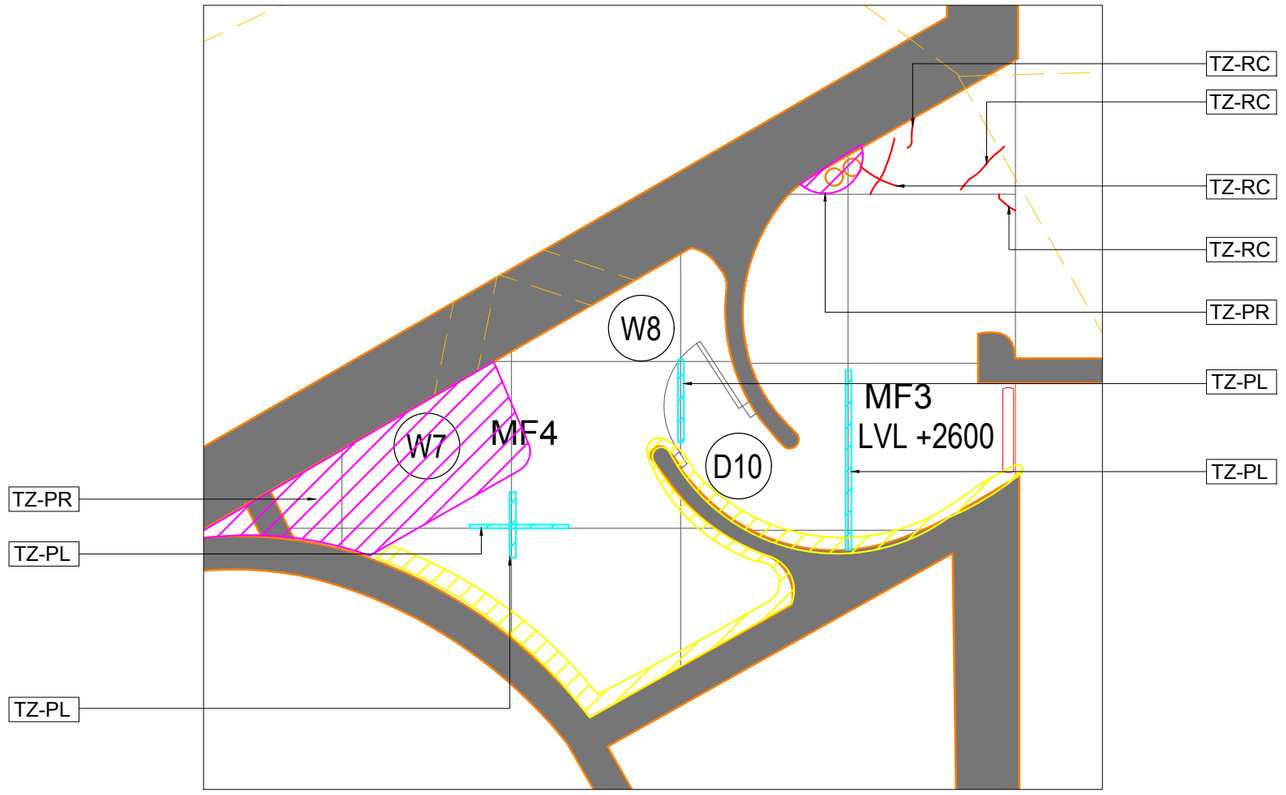
PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



NOTES:

1. All the terrazzo surfaces to be cleaned with detergent or as per item no. ##
2. Termite to be exterminated with pest control (item no.##)
3. All survey carried out through a detail visual inspection of the building and no destructive analysis has been carried out.
4. All dimensions in the drawing are in mm(millimetres) .

LEGEND:

Material Loss	
Cracks	
Stains	
Deposit	
Termite	
Previous Repair/Intervention	

CODE	TREATMENT
TZ-PR	PREVIOUS REPAIR
TZ-RC	REPAIR CRACK
TZ-PL	PATCH LOSS /FILL

KEY PLAN

DRAWING SCALE: 1:10

GRAPHIC SCALE:

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	BHAWANA DANDONA	27.09.2016

DRAWING NAME:
LANDSCAPE PLAN

DRAWING NUMBER: GB/CP/P-05

SERIES: CONSERVATION PROPOSAL

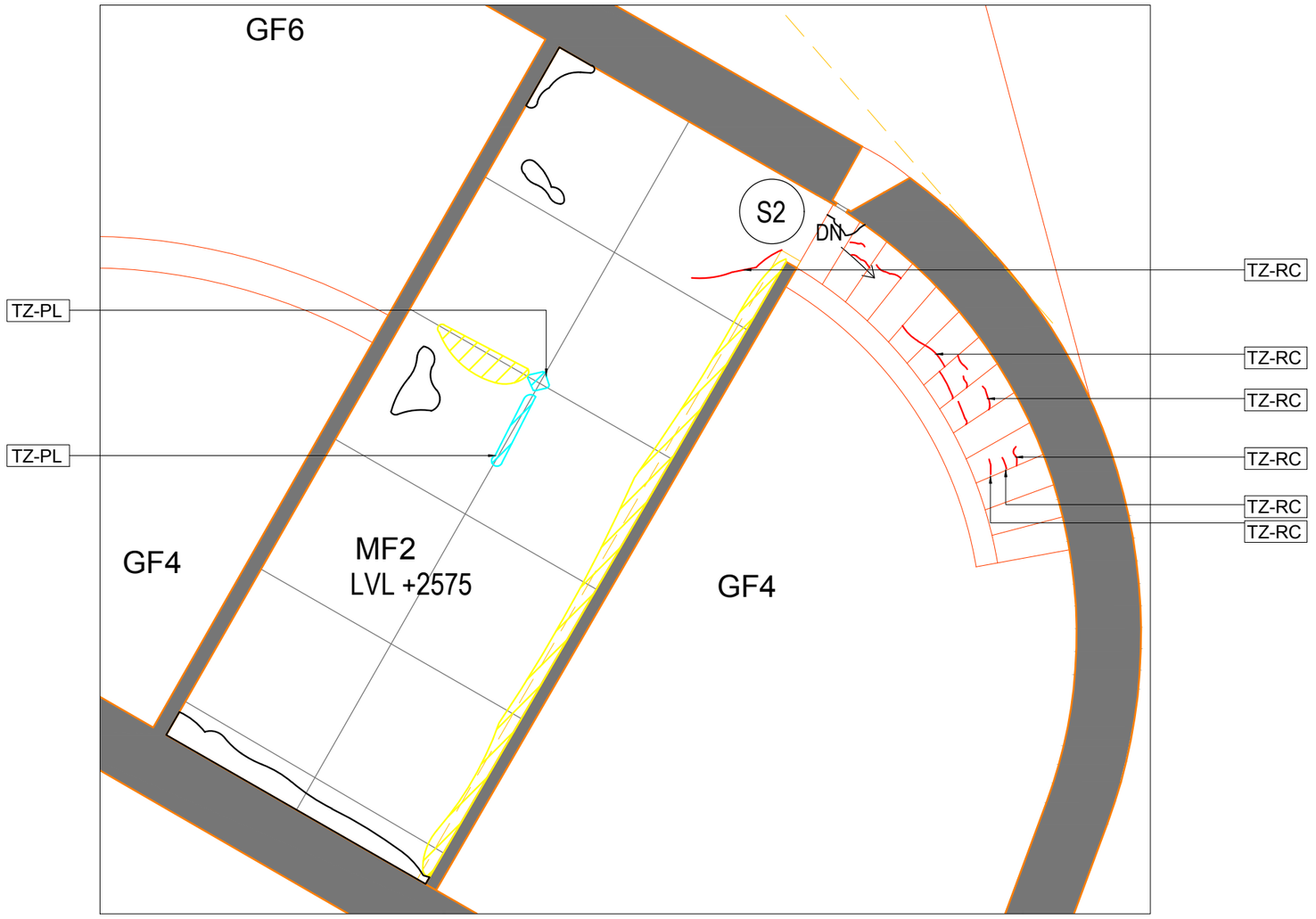
PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



NOTES:

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3. All survey carried out through a detail visual inspection of the building and no destructive analysis has been carried out.
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LEGEND:

Material Loss	
Cracks	
Stains	
Deposit	
Termite	
Previous Repair/Intervention	

CODE	TREATMENT
TZ-PR	PREVIOUS REPAIR
TZ-RC	REPAIR CRACK
TZ-PL	PATCH LOSS /FILL

KEY PLAN

DRAWING SCALE: 1:10

GRAPHIC SCALE:

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	BHAWANA DANDONA	27.09.2016

DRAWING NAME:
LANDSCAPE PLAN

DRAWING NUMBER: GB/CP/P-06

SERIES: CONSERVATION PROPOSAL

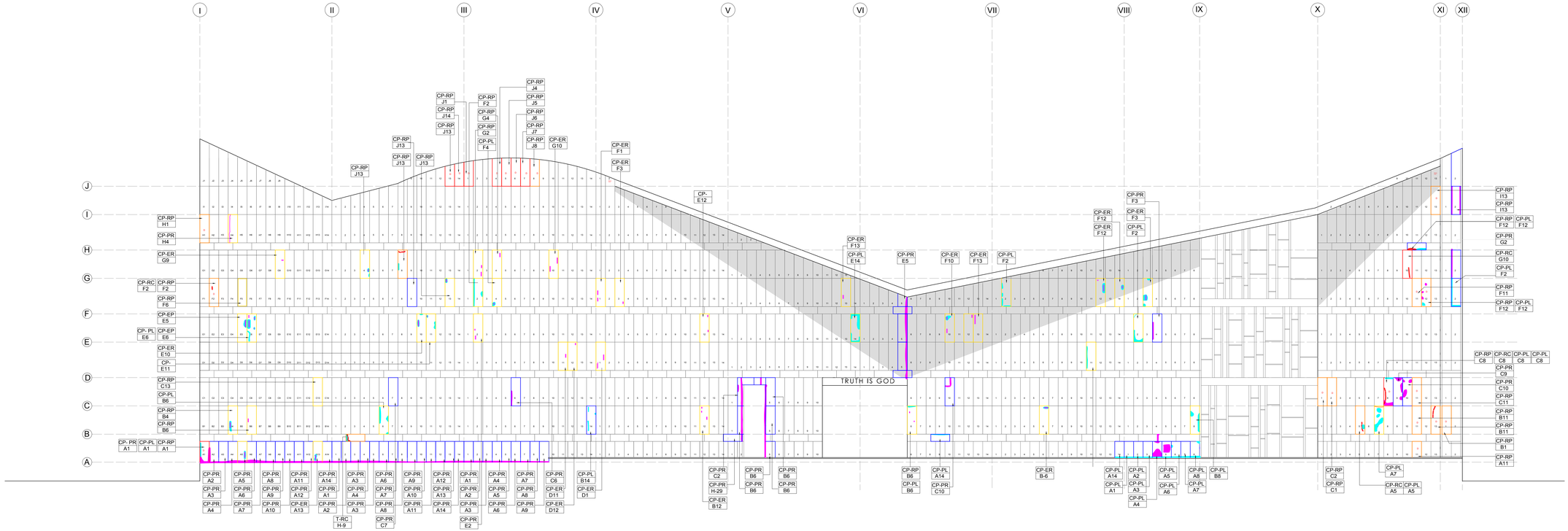
PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:

DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



NOTES:

1. General cleaning with water
2. Repoint all joints
3. Clean/remove vegetation from the joints as per item no.
4. Insect nests and termites to be exterminated from behind the panels during repointing as per item no.

CODE	TREATMENT	
CP-RP	RESECURE PANEL	
CP-RC	REPAIR CRACK	
CP-PL	PATCH LOSS /FILL	TREATMENT TAG
CP-PR	PREVIOUS REPAIR	
CP-ER	EXPOSED REBAR	PROVISION LOCATION

CONDITION

- Dislodged
- Cracks
- Material Loss
- Previous Repair

PRIORITY

- Very High
- High
- Medium
- Low

KEY PLAN

DRAWING SCALE: 1:50

GRAPHIC SCALE:

DRAWN BY: BHAVYA AHUJA | **CHECKED BY:** BHAVNA DANDONA | **DATED:** 07.11.2016

DRAWING NAME: ELEVATION- 1

DRAWING NUMBER: GB/CP/E-01

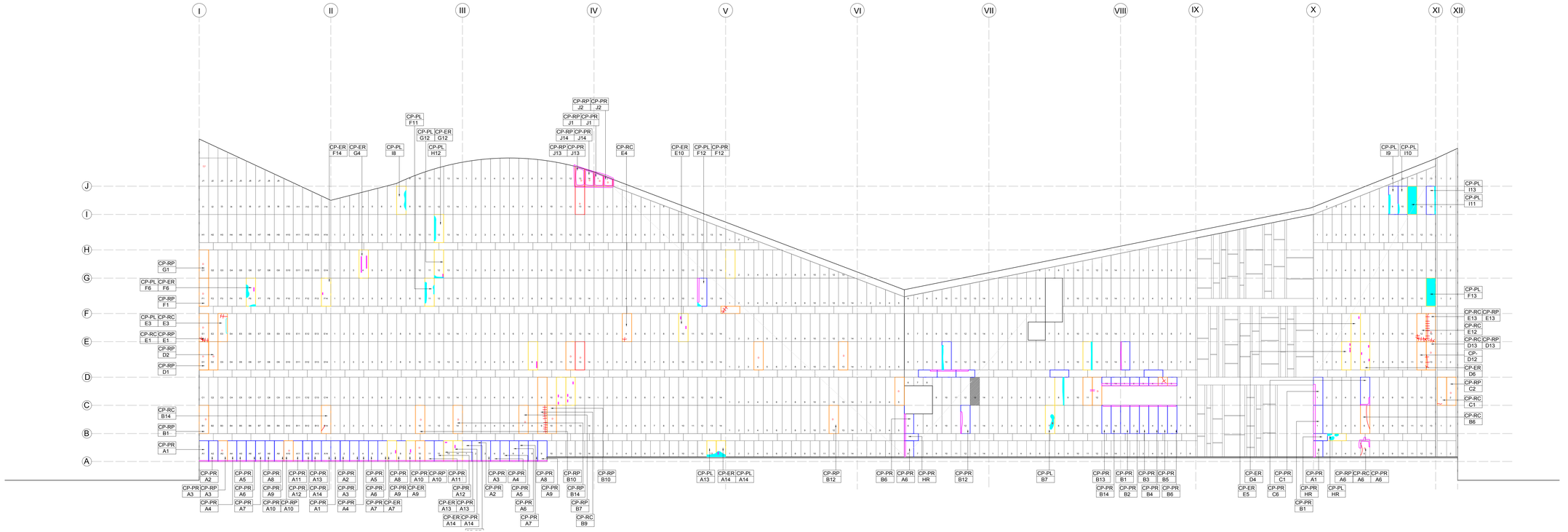
SERIES: CONSERVATION PROPOSAL

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



NOTES:

1. General cleaning with water
2. Repoint all joints
3. Clean/remove vegetation from the joints as per item no.
4. Insect nests and termites to be exterminated from behind the panels during repointing as per item no.

CODE	TREATMENT	
CP-RP	RESECURE PANEL	TREATMENT TAG
CP-RC	REPAIR CRACK	
CP-PL	PATCH LOSS /FILL	
CP-PR	PREVIOUS REPAIR	
CP-ER	EXPOSED REBAR	PROVISION LOCATION

CONDITION

- Dislodged
- Cracks
- Material Loss
- Previous Repair

PRIORITY

- Very High
- High
- Medium
- Low

KEY PLAN

DRAWING SCALE: 1:50

GRAPHIC SCALE:

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	BHAVNA DANDONA	07.11.2016

DRAWING NAME:
ELEVATION- 2

DRAWING NUMBER: GB/CP/E-02

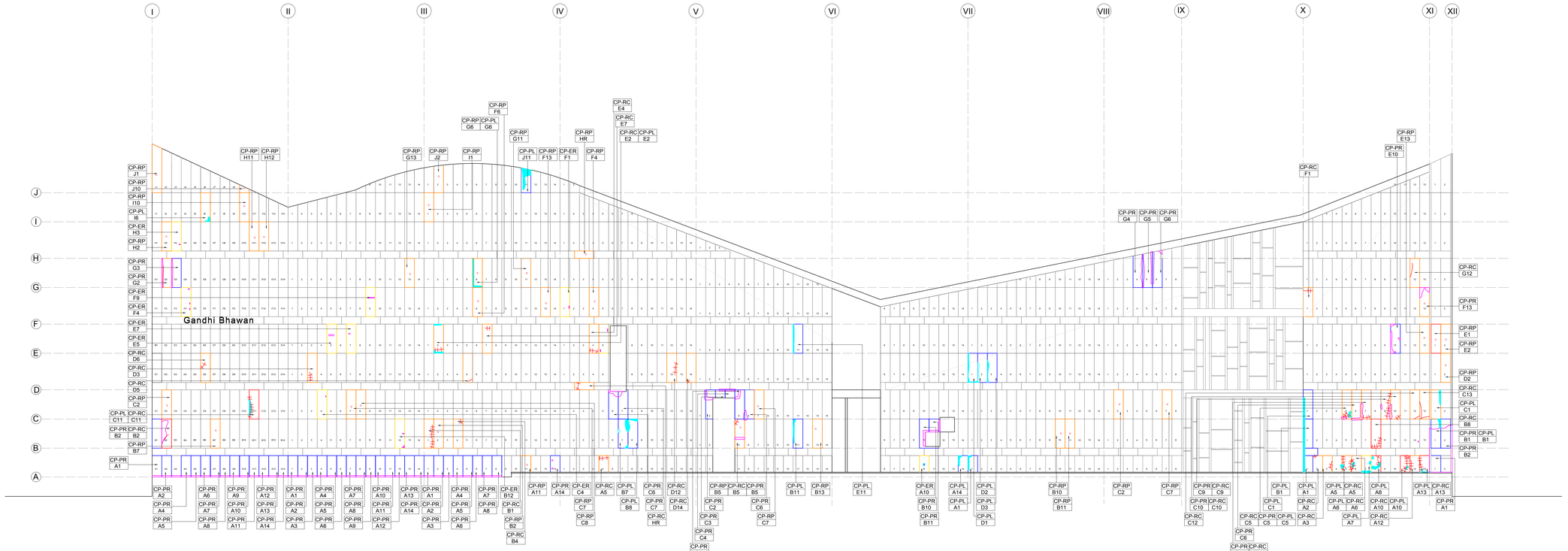
SERIES: CONSERVATION PROPOSAL

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



NOTES:

1. General cleaning with water
2. Repoint all joints
3. Clean/remove vegetation from the joints as per item no.
4. Insect nests and termites to be exterminated from behind the panels during repointing as per item no.

CODE	TREATMENT	
CP-RP	RESECURE PANEL	TREATMENT TAG
CP-RC	REPAIR CRACK	
CP-PL	PATCH LOSS /FILL	
CP-PR	PREVIOUS REPAIR	
CP-ER	EXPOSED REBAR	PANEL/CRACK LOCATION

CONDITION

- Dislodged
- Cracks
- Material Loss
- Previous Repair

PRIORITY

- Very High
- High
- Medium
- Low

KEY PLAN

DRAWING SCALE: 1:50

GRAPHIC SCALE:

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	BHAVNA DANDONA	07.11.2016

DRAWING NAME:
ELEVATION- 3

DRAWING NUMBER: GB/CP/E-03

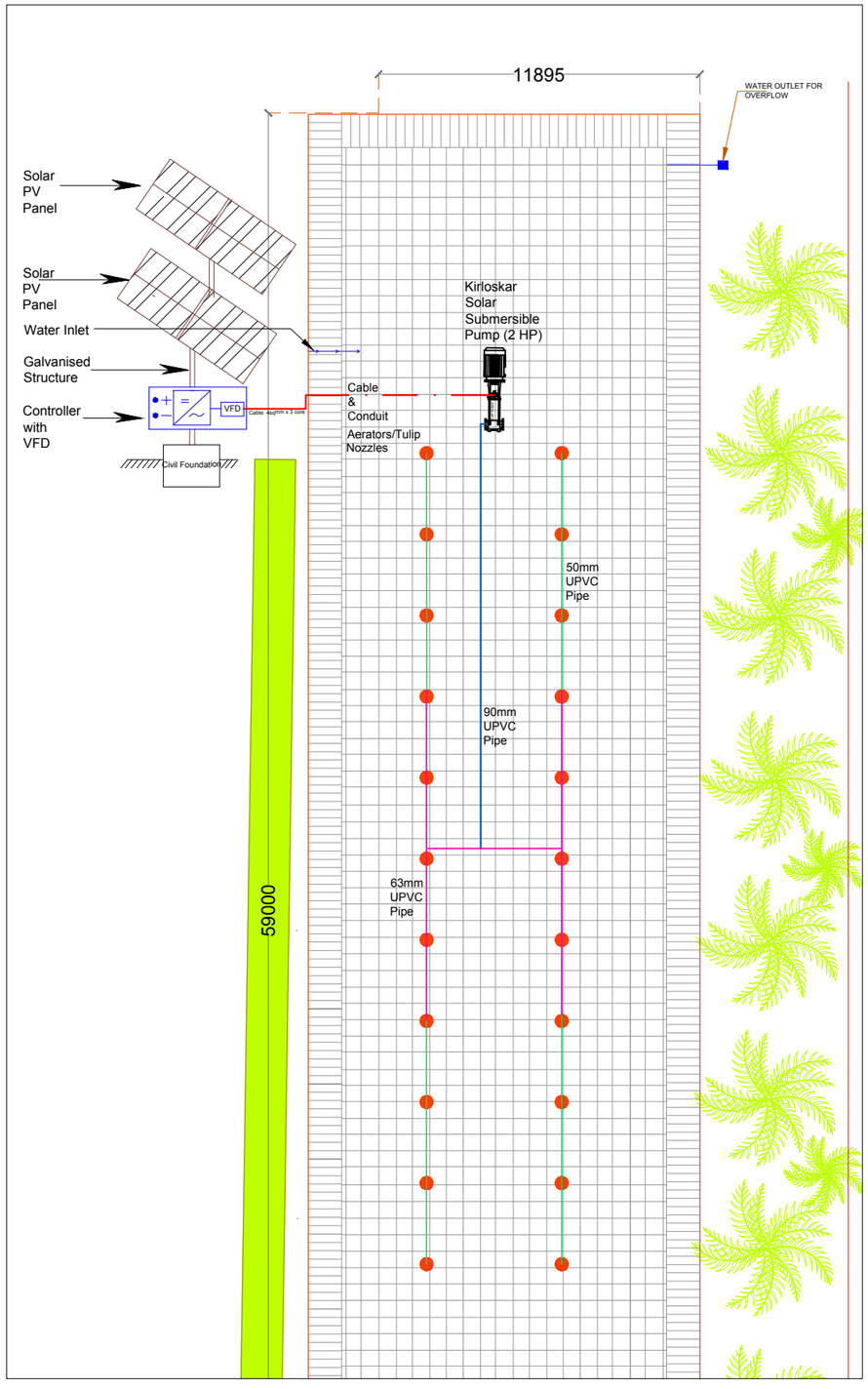
SERIES: CONSERVATION PROPOSAL

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

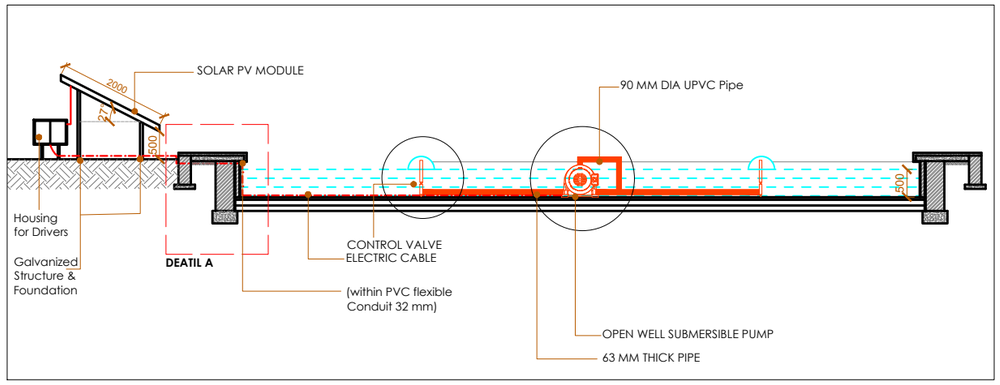
CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

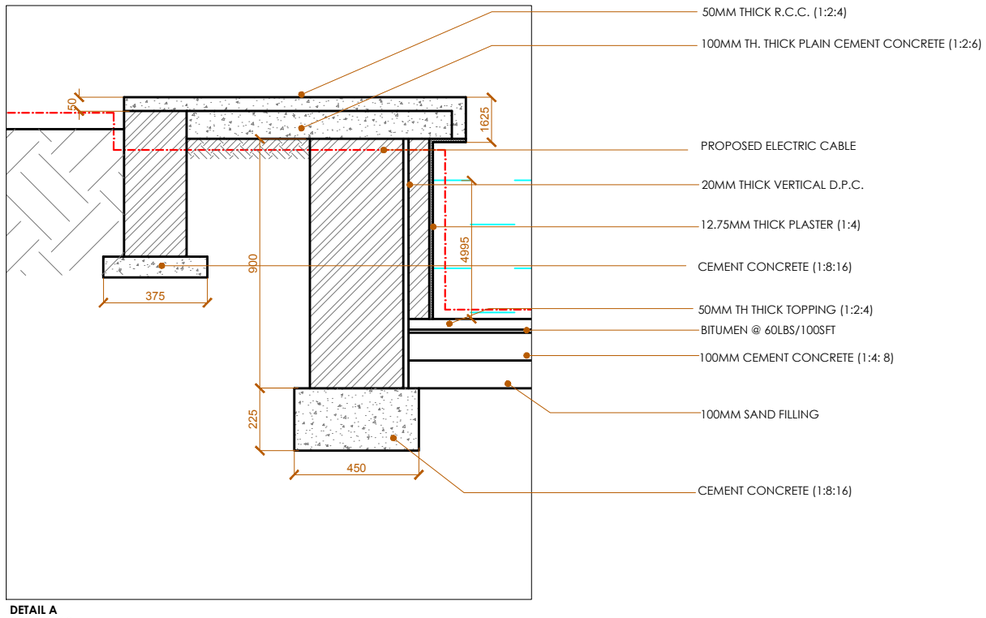
A-258, SOUTH CITY -1
GURGAON-122001



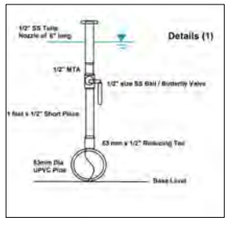
POOL PLAN

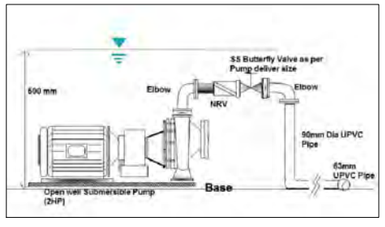


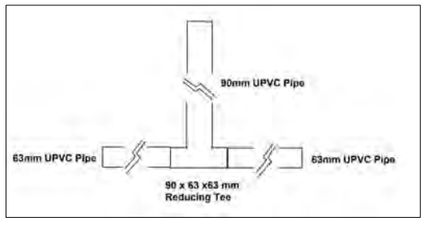
SCHEMATIC SECTION FOR AERATION
Scale- 1:50



DETAIL A
Scale- 1:10

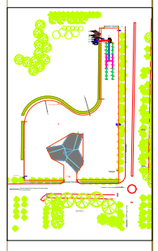






NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS) Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)



KEY PLAN

DRAWING SCALE: 1:100/1:10

GRAPHIC SCALE:

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	SUCHANDRA BARDHAN	27.09.2016

DRAWING NAME:
LANDSCAPE PROPOSAL

DRAWING NUMBER: GB/LP/P-02

SERIES: LANDSCAPE PROPOSAL

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
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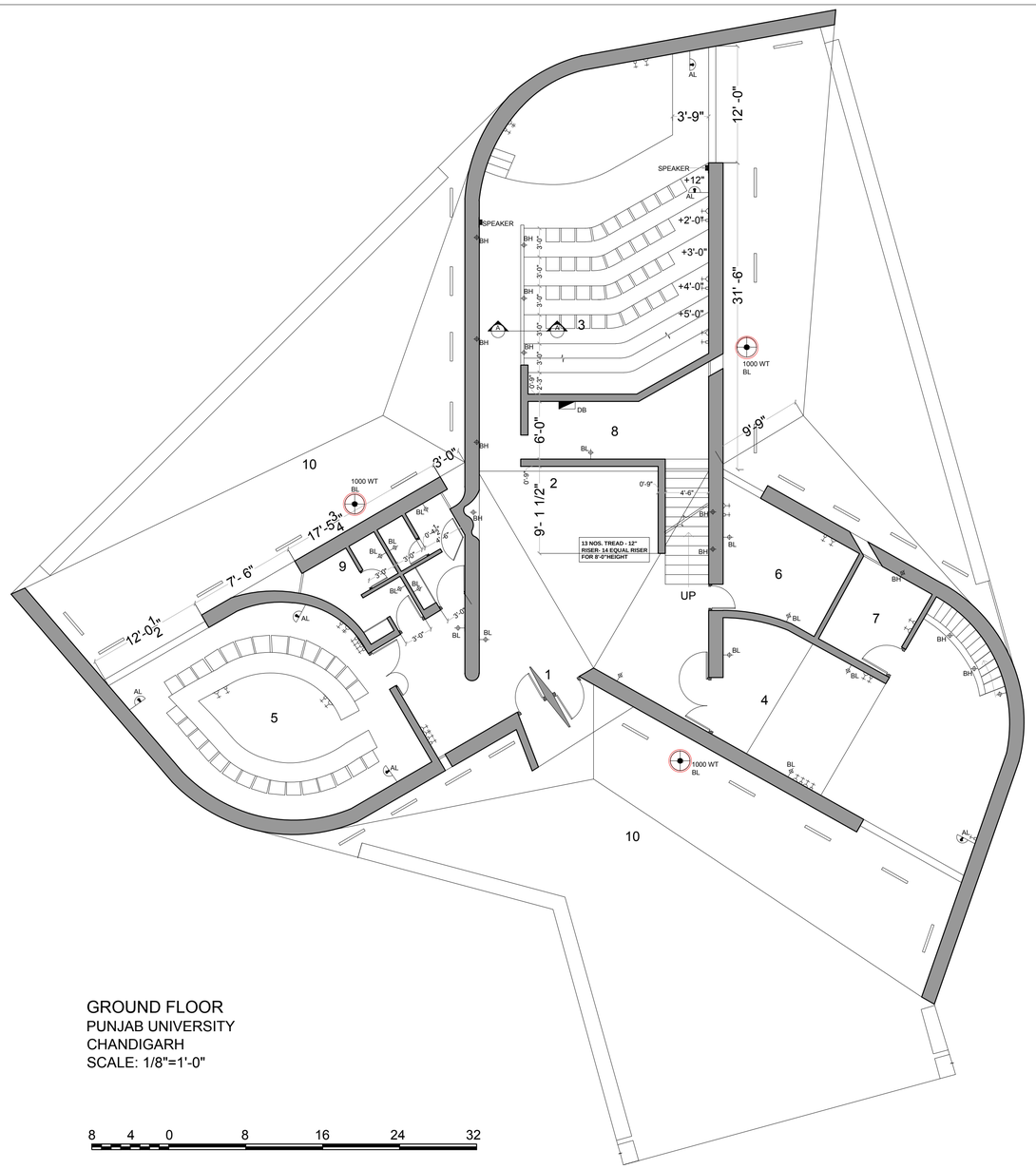


GROUND FLOOR
PUNJAB UNIVERSITY
CHANDIGARH
SCALE: 1/8"=1'-0"

8 4 0 8 16 24 32

1. Entrance Lobby
2. Exhibition
3. Lecture Hall
4. Library
5. Seminar Room
6. Director's Room
7. Research Council
8. Store
9. Lavatory
10. Terrace

NOTES:-

1. THE EXISTING ELECTRICAL POINTS HAVE BEEN SHOWN IN THE DRAWING SHALL BE KEPT AS IT IS.

2. ELECTRICAL POINTS (EXISTING) SHALL BE MADE FUNCTIONAL WITH TUMBLER/SWITCHES TO MAINTAIN THE ORIGINAL CHARACTER OF THE BUILDING.

3. NO ADDITIONAL POINT SHALL BE ADDED TO THE BUILDING.

4. RE-WIRING NEEDS TO BE CARRIED OUT WITHOUT ANY CHISELING ON THE FLOORS, WALLS & ROOF ETC.

5. NO FANCY LIGHTS SHALL BE INSTALLED IN THE GANDHI BHAWAN. ONLY INCANDESCENT LAMPS/WOODEN BRACKETS LIGHT SHALL BE PROVIDED FOR ITS HERITAGE CHARACTER.

6. NO TUBE LIGHT TO BE FIXED ON THE SURFACE OF THE WALL, ROOF OR ON THE FRONT FACADE OF THE BUILDING.

7. ALL THE EXISTING WD. BATTENS WIRING SHAL BE REMOVED FROM THE SURFACE OF WALL.

8. ONLY BULB HOLDER SHALL BE PROVIDED IN THE COVE LIGHT.

9. NO WALL HUNG FANS SHALL BE FIXED ON THE WALL AS PER EXISTING PATTERN ONLY PEDESTAL FANS SHALL BE USED FOR ALL THE SPACES SUCH AS AUDI, SEMINAR HALL ETC.

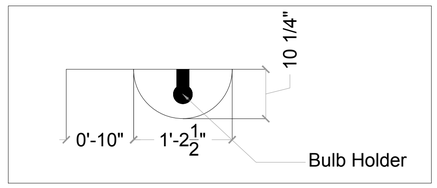
10. NO ADDITIONAL POWER PINT SHALL BE PROVIDED WITHOUT CONSULTING THE COMMITTEE.

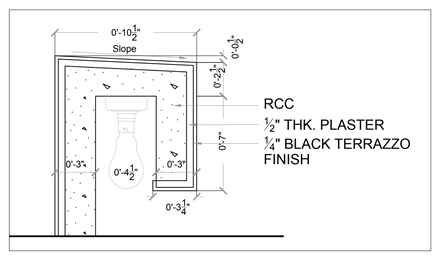
11. NO ASSUMPTION TO BE MADE IN CASE OF DOUBT ARCHITECT P.U. SHALL BE CONSULTED.

12. ALL THE RECOMMENDATION HAVE BEEN MADE KEEPING IN VIEW THE GUIDELINES ISSUED BY U.T. REGARDING CONSERVATION OF GRADE -1 HERITAGE BUILDING IN CHANDIGARH IN HIS LETTER DATED 04-01-16 NO ARCH -2016/19

NOTES:-

1. ALCOVE LIGHT SHALL BE FIXED WHEREVER SHOWN IN THE DRAWING. SIZE AND SHAPE SHALL BE KEPT SAME AS / THE ALCOVE LIGHT IN THE LIBRARY OF GANDHI BHAWAN BLDG.





NOTES:

1. ELECTRICAL LAYOUT PROPOSAL IS BASED ON THE INPUTS FROM PANJAB UNIVERSITY, OFFICE OF CHIEF ARCHITECT HARPREET SINGH
2. PEDESTAL LIGHTS TO BE INSTALLED IN AUDITORIUM

LEGEND:

5AMP PLUG POINT	--	
15AMP PLUG POINT	--	
BULB HOLDER	BH	
WDN. BRACKET LIGHT (BL)	BL	
SWITCH BOARD	--	
ALCOVE LIGHT	AL	
SPEAKER FOR SOUND	--	
1000 WT BULB LIGHT (PEDESTAL STAND)	--	
FLOOR RECESSED WATER PROOF LIGHT		
DISTRIBUTION BOARD	DB	

OPTION FOR PEDESTAL LIGHTS

WORKING EXISTING LIGHTS IN AUDITORIUM

OPTION 1- EXTERIOR FACADE LIGHTING

OPTION 2- EXTERIOR FACADE LIGHTING WITH led STRIP LIGHTING ON ROOF TO HIGHLIGHT THE FORM

DRAWING SCALE: 1/16" =1'

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	

DRAWING NAME:
LIGHTING LAYOUT

DRAWING NUMBER: GB/P/EL/P-01 a

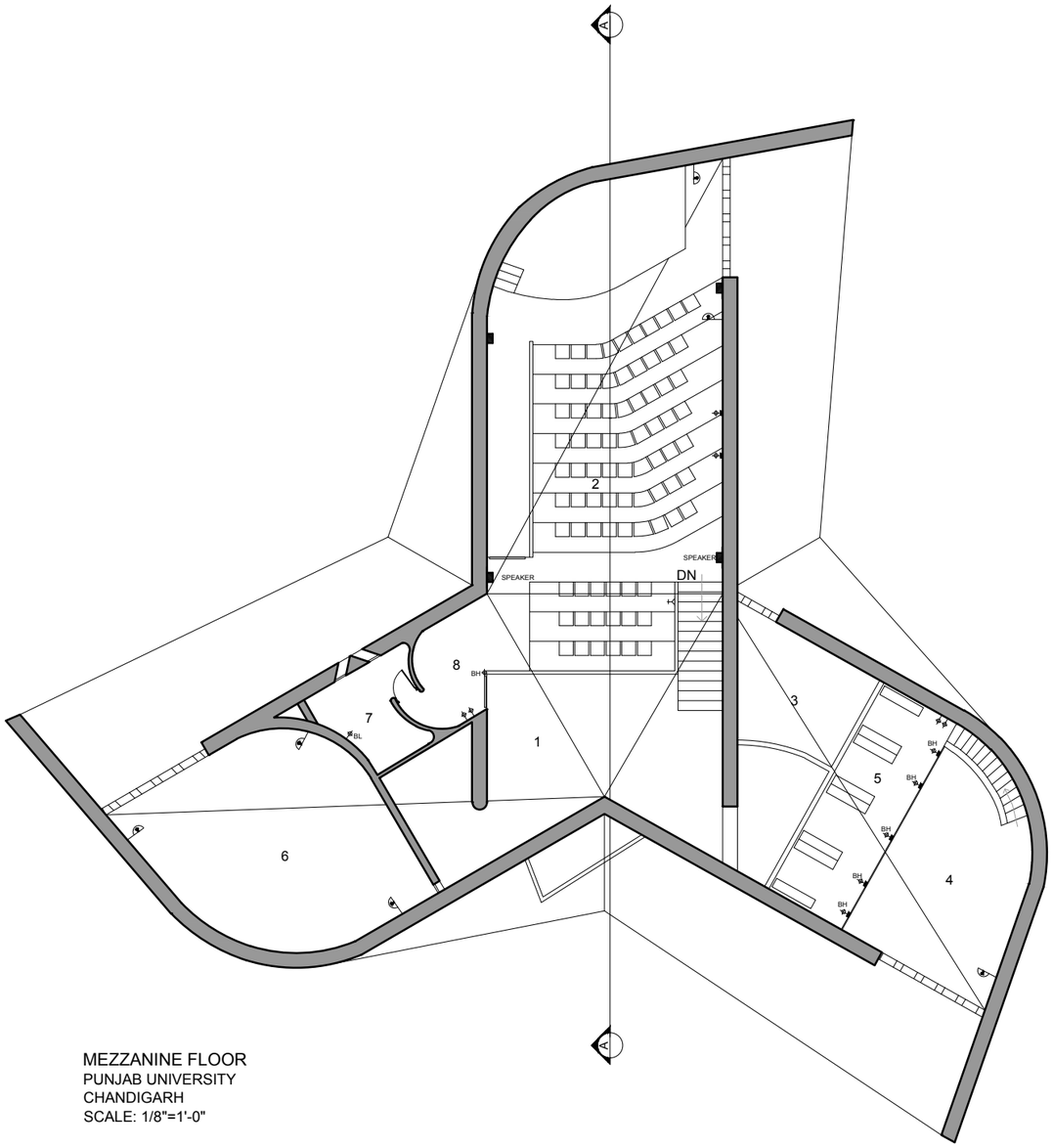
SERIES: PROPOSAL DRAWING

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



MEZZANINE FLOOR
PUNJAB UNIVERSITY
CHANDIGARH
SCALE: 1/8"=1'-0"

1. Upper Part of Entrance Hall
2. Upper Part of Lecture Hall
3. Upper Part of Director's Room
4. Upper Part ofLibrary
5. Stackes
6. Upper Part of Seminar's Room
7. Store
8. Alcove

NOTES:-

1. THE EXISTING ELECTRICAL POINTS HAVE BEEN SHOWN IN THE DRAWING SHALL BE KEPT AS IT IS.

2. ELECTRICAL POINTS (EXISTING) SHALL BE MADE FUNCTIONAL WITH TUMBLER/SWITCHES TO MAINTAIN THE ORIGINAL CHARACTER OF THE BUILDING.

3. NO ADDITIONAL POINT SHALL BE ADDED TO THE BUILDING.

4. RE-WIRING NEEDS TO BE CARRIED OUT WITHOUT ANY CHISELING ON THE FLOORS, WALLS & ROOF ETC.

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7. ALL THE EXISTING WD. BATTENS WIRING SHAL BE REMOVED FROM THE SURFACE OF WALL.

8. ONLY BULB HOLDER SHALL BE PROVIDED IN THE COVE LIGHT.

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12. ALL THE RECOMMENDATION HAVE BEEN MADE KEEPING IN VIEW THE GUIDELINES ISSUED BY U.T. REGARDING CONSERVATION OF GRADE -1 HERITAGE BUILDING IN CHANDIGARH IN HIS LETTER DATED 04-01-16 NO ARCH -2016/19

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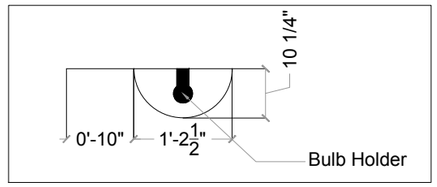
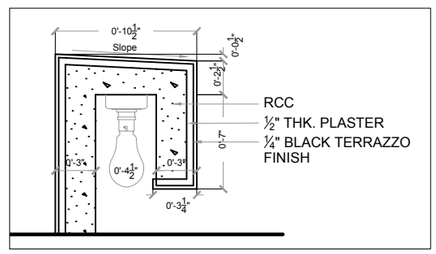




NOTES:

1. ELECTRICAL LAYOUT PROPOSAL IS BASED ON THE INPUTS FROM PANJAB UNIVERSITY, OFFICE OF CHIEF ARCHITECT HARPREET SINGH
2. PEDESTAL LIGHTS TO BE INSTALLED IN AUDITORIUM

LEGEND:

5AMP PLUG POINT	--	
15AMP PLUG POINT	--	
BULB HOLDER	BH	
WDN. BRACKET LIGHT (BL)	BL	
SWITCH BOARD	--	
ALCOVE LIGHT	AL	
SPEAKER FOR SOUND	--	
1000 WT BULB LIGHT (PEDESTAL STAND)	--	
FLOOR RECESSED WATER PROOF LIGHT		
DISTRIBUTION BOARD	DB	

DRAWING SCALE: 1/16" =1'

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	

DRAWING NAME:
LIGHTING LAYOUT

DRAWING NUMBER: GB/P/EL/P-02

SERIES: PROPOSAL DRAWING

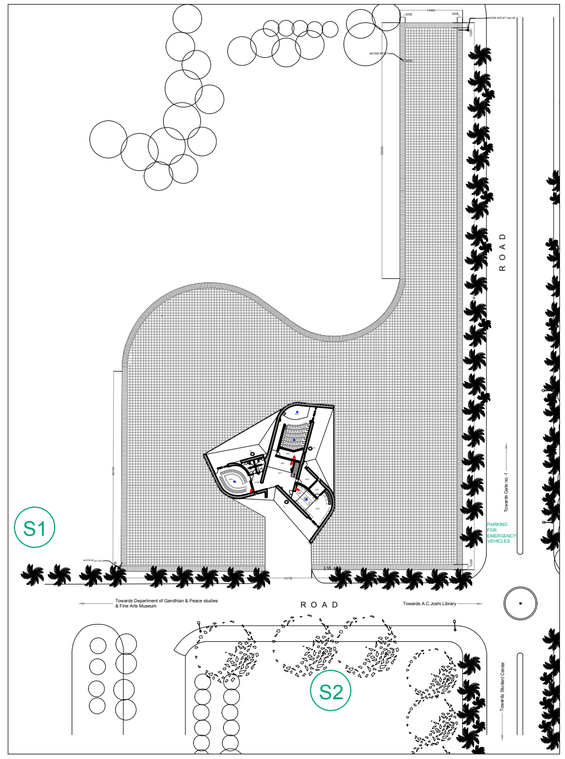
PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE
'KEEPING IT MODERN' GRANT BY
GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001

GROUND FLOOR PLAN



KEY PLAN
SCALE: 1:1000

FIRE/SMOKE SENSOR DETECTION ALERT ALARM SYSTEM

SURFACE MOUNTED EMERGENCY EXIT SIGNAGES

LEGEND		NO.
	PROPOSED CAMERA	2
	FIRE EXTINGUISHER	2
	EXISTING FIRE EXTINGUISHER	3
EXIT	EMERGENCY SIGNAGE	4
I.S.	INFORMATION SIGNAGE	1
	SMOKE DETECTOR	4
	STORAGE FOR EMERGENCY EQUIPMENT	
S1	SALVAGE ARE FOR COLLECTION	
S2	SALVAGE AREA FOR PEOPLE	

NOTES:

1. The security systems should integrate on site personnel management with off-site monitoring to ensure protection of the site at all times.
2. The entire site should follow safety and firefighting norms.
3. Capacity building and training should form an integral part of risk management for Gandhi Bhawan.
4. Defunct services such as electrical wiring and plumbing and drainage lines should be removed or replaced as deemed necessary at the earliest to minimize risk to the building fabric.

KEY PLAN

DRAWING SCALE: 1:100

GRAPHIC SCALE:
0M 2M 4M

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	27.09.2016

DRAWING NAME:
RISK MANAGEMENT PLAN

DRAWING NUMBER: GB/RMP/P-01

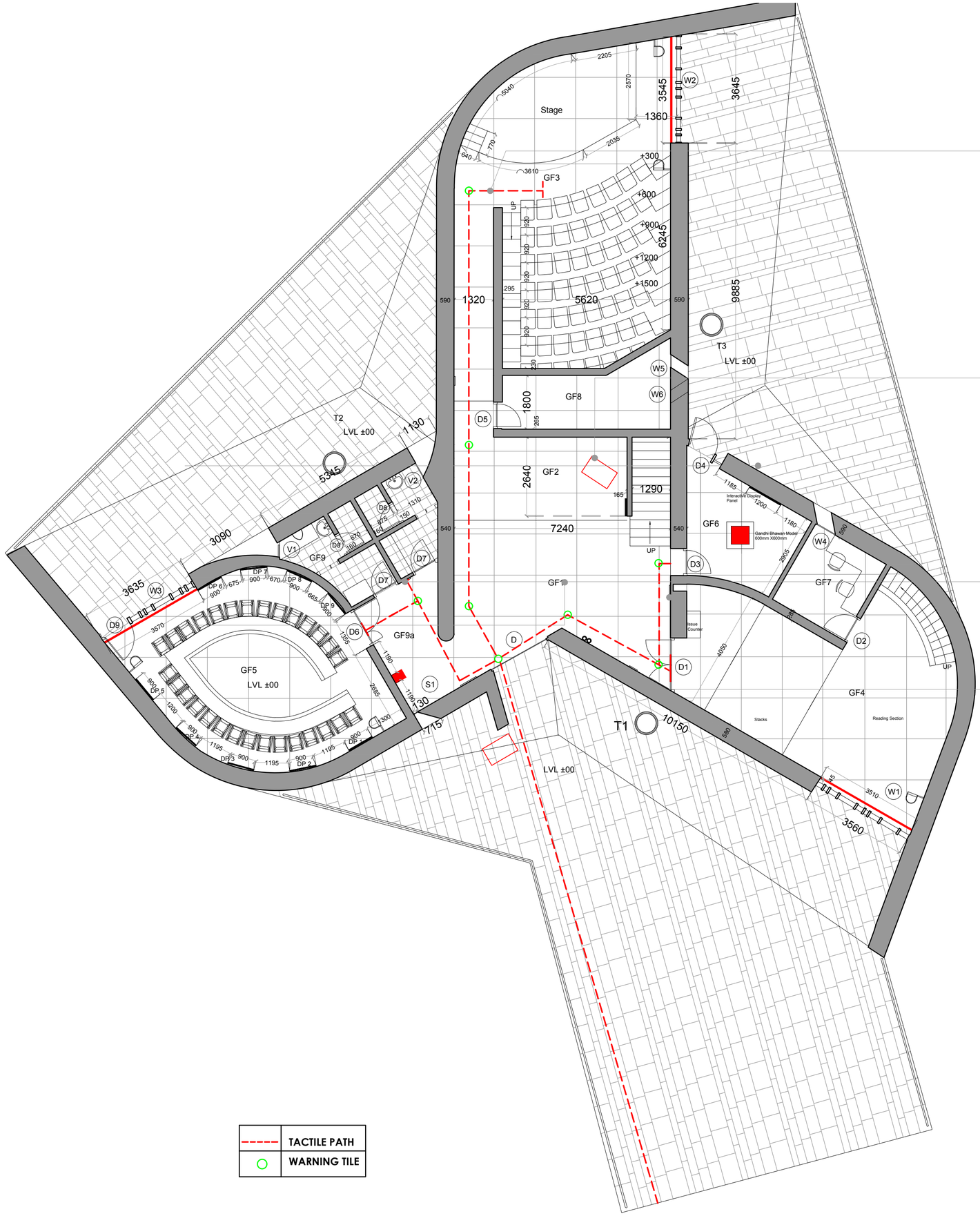
SERIES: PROPOSAL DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001



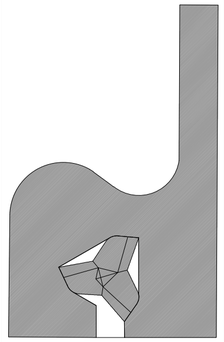
STAINLESS STEEL TACTILE FLOOR TILES

SIGNAGE
MATERIAL: STAINLESS STEEL
EMBOSSED LETTERS WITH BRAILLE FOR UNIVERSAL ACCESS

SIGNAGE
MATERIAL: STAINLESS STEEL
EMBOSSED LETTERS FOR UNIVERSAL ACCESS

NOTES:

1. 2D drawings have been generated on the basis of 3d point cloud data from Laser scanning carried out by Plant Engineering & Geomatic Services (PEGS).Basic Dimensions have been cross-reffered on site and archive drawings
2. All dimensions are in mm (millimeter)



KEY PLAN

DRAWING SCALE: 1:100

GRAPHIC SCALE:
0M 2M 4M

DRAWN BY:	CHECKED BY:	DATED:
BHAVYA AHUJA	VANICKA ARORA	27.09.2016

DRAWING NAME:
UNIVERSAL ACCESS PLAN

DRAWING NUMBER: GB/MD/P-01

SERIES: PROPOSAL DRAWINGS

PROJECT:
CONSERVATION PLANNING FOR GANDHI BHAWAN, PANJAB UNIVERSITY
FUNDED THROUGH THE 'KEEPING IT MODERN' GRANT BY GETTY FOUNDATION, USA

CLIENT:
PANJAB UNIVERSITY, CHANDIGARH

CONSULTANT:
DRONAH
DEVELOPMENT & RESEARCH ORGANISATION FOR NATURE,ARTS & HERITAGE

A-258, SOUTH CITY -1
GURGAON-122001

ANNEXURE **10.5**

Estimate

	GANDHI BHAWAN -ESTIMATES FOR CMP PROPOSALS				
S.no.	**Items of Work**	**Quantity**	**Unit**	**Rate in Rs**	**Amount (Rs)**
I	**Landscape works**				
1	Pool waterproofing Base-Bonding coat & Bond FRS	4598	sqm	789.7 per	3631168
2	Pool waterproofing Base -Pressure Grouting	4598	sqm	1560 per	7174880
3	Pool waterproofing Walls - complete works	278	sqm	3889 per	1080000
4	Online filters	LS			800000
5	Solar powered aerator systems	8	no	130000 each	1040000
	TOTAL COST FOR POOL WORKS				**13726048**
II	**Conservation works of Exterior Panels**				
	Structural crack leading to disintegrating panel/ loss of material/ exposure of rebar Dislodged or moving panel, leading to opening of joints, displacement of panel from substrate Repair crack: clean, grout and fill Corroded rebar: clean, prime and patch on top Loss due to crack: patch repair Dislodged Panel. Grout the back side (inject). Pin to resecure.Repair cracks by routing, cleaning and filling with grout/mortar.For loss n cladding panel provide a new patch after cleaning the area with patching mortar. For inappropriate or failing previous repairs, provide new patches after cleaning the area. If the rebar is exposed, it should be cleaned and coated with a corrosion inhibitor	575	no	5000	
	Making of new panels for Missing Panel	5	no	7000	35000
	Clean the building for Sun related staining Deposits & Staining	1200	sqm	500 per sqm	600000
	TOTAL COST FOR EXTERIOR PANEL CONSERVATION				**635000**
III	**Conservation works of Interiors**				
3.1	**Terrazzo Walls and floors**				
	Repair cracks by routing, cleaning and filling with grout when the floors are polished	6m	runing mtr	Rs.170	1020
	Remove inappropriate existing repair material and provide new to match the existing	10	sq mtr	Rs. 900	9000
	Mirror polishing	300	sqm	350 per sqm	105000
3.2	**WALL and CEILING: Brick with plaster finish**				
	Plaster damage to be replastered	NA	sq mtr	Rs. 400	Recently completed - not reqd immediately
	OBD in specified colour as per paint analysis	NA	sq mtr	Rs. 250	Recently completed - not reqd immediately
3.3	**WALLS: Brick with Terrazzo finish**				
	Cracks to be repaired by removing 1" wide section along the crack				
	Removal of damaged section				
	removing & relaying previous repairs	10	sq mtr	450 sqm	4500
3.4	**RED SANDSTONE FLOORING**				
	Relaying of loose sandstone/ Replacing damaged ones				
	Sandstone cleaning & applying PV coating	400	sq mtr	Rs. 450	180000
3.5	**Doors & Windows**				
	8mm toughened glass replacement (skylight area)	70	sq mtr	Rs. 1300	91000
	5mm toughened glass replacement	21	"	Rs. 1000	21000
	MP Teak for door frames	2	cu mtr	Rs. 30000	60000
	Replacing damaged door & making new (labor)	5	"	Rs. 15000	75000

	Melamine polishing of the wooden replacements	12	sq mtr	Rs. 6500	
3.6	**Mural Conservation & Restoration**				As per consultation with Shri Satish Gujaral
3.7	**Furniture**				
	Resecuring Chairs in Auditorium	LS			30000
	Repair of committee room table	LS			50000
	Repair of Library table & Chair			5000 per chair	
	Providing new chairs & computer table for Researcher's room	LS			20000
	TOTAL COST FOR CONSERVATION OF INTERIORS				**646520**
4	**Use & Interpretation**				
	Short throw Projector	1		Rs.55000	55000
	Screen 8'X4'	1		Rs. 7500	7500
	projector hanger	1		Rs. 2000	2000
	Installation	1		Rs.1000	1000
	Interactive display Panel sixe 46 inches	1		250000	25000
	Static interpretation panels of A1 size (11in committee room	10		10000	100000
	Motorized roller blinds				
	a. Black out cloth	80	sq mtr	Rs. 1500	120000
	b. Rolling Motor	6		Rs. 10000	60000
	c. installation	6		Rs. 1000	6000
	Information Signages in steel and brass	7		Rs. 4000	28000
	TOTAL COST FOR INTERPRETAION-USE				**404500**
5	**Services**				
5.1	**Lighting**				
	Wiring System with distribution board	LS (for additional and exterior)			50000
	Switch boards with 5A plug points, with 15A plug point	LS			20000
	Wall Light Fixtures - 13 watt LED	5	no	Rs. 1200	6000
	Floor recessed waterptoof LED 3 watts, 15m throw	30	no	Rs. 32000	960000
	Free standing lamp in ss design as per specs	2	no	Rs. 15000pe	30000
5.2	**Water Cooler as per drawing and specs**	LS			25000
5.3	**Sanitary fixtures (new)**	LS			20000
5.4	**HVAC (30 tonnes total approx.)**				
	Floor Standing AC units				
	a. 4 tonn unit	1		Rs. 184000	184000
	b. 3 tonn unit	2		Rs. 145900	145900
	c. 1 tonn unit	2		Rs. 40000	40000
	Installation of Geothermal System (OPTIONAL - will add extra cost of 60 lakhs but will reduce running cost and no outdoor				
	Lan System (Wireless Networking for the site)				30000
5.5	**Acoustic & Soundproofing System**				
	Cladding Material with installation	130	sq m	Rs. 6450	448500
	Installation on-site as per the details			-	
	TOTAL COST FOR SERVICES				**1959400**
6	**Risk management**				
	Fire Extinguishers - 4KG capacity ISI marked	4		Rs. 3500	14000
	CCTV Cameras				
	Camera	3		Rs. 15000	45000
	DVR 8 chanel	3		Rs.35000	105000
	Hard drive 1TB	1		Rs. 5000	5000
	Smoke/ Fire Detectors wireless	4		Rs.2000	8000
	Manual call points	2		Rs.750	1500
	Response indicators	4		Rs. 310	1240
	wall mounted hooter	2		Rs. 1250	2500
	2 zone fire alarm panel with 2 batteries	1		Rs. 12900	12900
	1.5mm 2 core wire for alarm system	30	meter	Rs. 44	1320
	Emergency signages as per design	2	no	2000 per	4000
	TOTAL COST FOR RISK MANAGEMENT				**200460**
7	**Archival Storage and Conservation**				
	Storage Compactors for Drawings	2	no	100000	200000
	Conservation of Drawings	13	no	45000 per	58500

	Conservation/cleaning of Model of Gandhi Bhawan	1	no	6000	6000
	Dataloggers	1	no	7500	7500
	TOTAL COST FOR CONSERVATION OF ARCHIVAL MATERIAL				**272000**
	GRAND TOTAL COST FOR GANDHI BHAWAN				**17843928**
	MISCELLANEOUS @ 5 %				892196
					18736124