TÉCNICO LISBOA

PRESERVING THE LEGACY OF THE MODERN MOVEMENT

Miremont-le-Crêt (1953-1957) in Geneva

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Notes:

1. All translations were done by the author.

2. All unreferenced photographs were taken by the author.

3. All unreferenced drawings were drew by the author and were based on the detailed drawings provided by the architecture offices in charge of the rehabilitation project of the case study building.

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ABSTRACT

Recent decades testified an increasing interest in Modern Movement architecture along with a rising concern regarding its preservation. The rehabilitation of the built legacy of this period is therefore essential to guarantee the continuity and sustainability of the Modern buildings, being mainly focused on the heritage, economic and energy constraints. Its challenge is to conserve the Modern architects' original conceptions, while adapting them to the new standards of the contemporary society.

The objective of this dissertation is the analysis of the mentioned constraints in the light of a specific example – the apartment building *Miremont-le-Crêt* (1953-1957) in Geneva – currently under a rehabilitation intervention. Fruit of the inventiveness of the local architect Marc Joseph Saugey (1908-1971), it is considered today an original and unique example, even beyond the context of Geneva. Listed as a Cantonal monument since 2002, its rehabilitation is being carried out by the local architecture office Meier-associés architects. Mainly focused on the building's envelope, it also includes several technical improvements of its components, all of them introduced with respect to Saugey's spirit and the building's existing substance.

A brief foreword on Modern building's conservation together with the description of successful case studies of rehabilitation interventions in Geneva is present as introduction to the study done, attempting to draw attention to the importance of preserving the architectural legacy of this epoch, and to the major challenges that it comprises.

This work results, therefore, in the documentation of *Miremont-le-Crêt*'s rehabilitation intervention. However, for the broaden understanding of the solutions adopted, Saugey's original project and intentions are extensively described, as well as contextualised both in the work of the architect and the local architectural and urban-planning *panorama* of the post-War.

Keywords: Modern Movement, Geneva, Marc Joseph Saugey, *Miremont-le-Crêt*, Meier+associés architects.

RESUMO

As últimas décadas testemunharam um aumento do interesse pela arquitectura do Movimento Moderno, a par de uma crescente preocupação em relação à sua preservação. A reabilitação do legado construído neste período é, assim, essencial para garantir a continuidade e sustentabilidade dos edifícios Modernos, focando-se principalmente nas questões do património, economia e energia. O desafio consiste em conservar as concepções originais dos arquitectos Modernos, adaptando-as aos novos padrões da sociedade contemporânea.

O objetivo desta dissertação é a análise das restrições mencionadas, à luz de um exemplo específico: o edifício de apartamentos *Miremont-le-Crêt* (1953-1957), em Genebra. Este edifício, que se encontra actualmente sob uma intervenção de reabilitação, é fruto da criatividade do arquitecto local Marc Joseph Saugey (1908-1971), sendo hoje considerado um exemplo original e único, não só em Genebra, como também no contexto internacional. Classificado como monumento Cantonal em 2002, a sua reabilitação está a ser realizada pelo escritório de arquitectura local Meier-associés arquitectes. O projecto incide no essencial na reabilitação do «envelope» do edifício mas incluí também várias melhorias técnicas dos seus componentes, todos eles introduzidos no respeito pelo espírito da obra de Saugey.

No início do trabalho realizado, apresenta-se uma breve contextualização sobre a conservação de edifícios Modernos, em conjunto com a descrição de estudos de casos de sucesso de intervenções de reabilitação realizadas em Genebra, na tentativa de chamar a atenção para a importância de preservar o legado arquitectónico desta época, bem como para os desafios que esta envolve.

Este trabalho resulta, assim, na documentação da intervenção de reabilitação no edifíco de habitação *Miremont-le-Crêt*. No entanto, para uma compreensão alargada das soluções adoptadas, o projecto original do edifício e as intenções originais de Saugey são amplamente descritos e contextualizados, tanto no âmbito do trabalho do arquitecto, como no panorama arquitectónico e urbano local do pós-guerra.

Palavras-chave: Movimento Moderno, Genebra, Marc Joseph Saugey, *Miremont-le-Crêt*, Meier+associés architects.

GENERAL INDEX

LIST OF ABBREVIATIONS

ASA – Association Syndicale des Architectes

ATG – Association des Techniciens de Genève

BET – Bureau d'entr'aide technique

CERN – European Organization for Nuclear Research

CIAM – International Congresses of Modern Architecture

CIRPAC – International Committee for the Resolution of Problems in Contemporary Architecture

CMNS – Commission des monuments, de la nature et des sites

DAEL – Département de l'aménagement, du logement et de l'énergie

DOCOMOMO – Documentation and Conservation of buildings, sites and neighbourhoods of the Modern Movement

DPS – Direction du patrimoine et des sites

DTP – Département des travaux publics

EAUG – École d'Architecture de l'Université de Genève

EPFL – École Polytechnique Fédérale de Lausanne

FAS – Fédération des Architectes Suisses

FIPA – Fondation des terrains industriels Praille-Acacias

GANG – Groupe pour l'architecture nouvelle à Genève

HLM – Habitations à Loyer Moderé

IAUG – Institut d'Architecture de l'Université de Genève

ICOMOS – International Council on Monuments and Sites

ILO – International Labour Organization

INTERASSAR – Intergroupe des Associations d'Architectes du Canton de Genève

IST – Instituto Superior Técnico

Maa – Meier+associés architectes

MoMo – Modern Movement

OPS – Office du patrimoine et des sites

SIA – Société suisse des Ingénieurs et des Architectes

SAP – Société d'Art Public

SEHEG – Société pour l'Exploitation d'Hôtels à l'Étranger, Genève

SEHR – Société d'Exploitation de l'Hôtel du Rhône

SoN – Society of Nations

TSAM – Laboratoire des Techniques et de la Sauvegarde de l'architecture Moderne

UIA – Union Internationale des Architectes

UN – United Nations Organization

UNESCO – United Nations Educational, Scientific and Cultural Organization

USA – United States of America

USSR – Union of Soviet Socialist Republics

VSSL – Vincent, Saugey, Schwertz and Lesemann

WWs – World Wars

WWI – World War I

WWII – World War II

ZADAI – Zone à Destination des Activités Internationales

LIST OF GRAPHICAL ELEMENTS

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03. *MIREMONT-LE-CRÊT*: CASE STUDY

03.1.The apartment building *Miremont-le-Crêt*: from project and construction (1953-1957) to heritage (2002)

03.2 The apartment building *Miremont-le-Crêt*: the rehabilitation intervention (2010-2014)

INTRODUCTION

The present document constitutes the dissertation elaborated as part of the Integrated Masters in Architecture at the Instituto Superior Técnico – Universidade de Lisboa – submitted for the award of the referred degree. It is however essential to note that it was developed during the spring semester of the academic year 2013/2014 at the École Polytechnique Fédérale de Lausanne, in Switzerland, under the Erasmus mobility programme.

Its main objective is to contribute to the research focused on the conservation of buildings and sets from the Modern Movement. Through the exhaustive analysis of a case study building of this period – *Miremont-le-Crêt* (1953-1957) in Geneva – currently under a rehabilitation intervention, this work attempts to draw attention to the importance of preserving the architectural legacy of this epoch, as well as the major challenges that it presents.

THE MOTIVATION

The main theme – preserving the legacy of the Modern Movement – for the study that would motivate my Master thesis appeared to me as a result of a series of factors, which together made possible its development:

a) When researching for possible Erasmus destinations, the EPFL came across to me, not only as the opportunity to study in a world-renowned university, but also as a chance to deepen my knowledge in the field of Modern architecture and its preservation. In the last years, Switzerland has proven to be a leading country in this area and, therefore, so has this university, particularly through the work of the Laboratory of Techniques and Preservation of Modern Architecture – TSAM (*Laboratoire de Techniques et de la Sauvegarde de l'Architecture Moderne*). Being selected to attend this programme was consequently an encouraging motivation for the development of a dissertation in this area.

b) The enthusiasm and the immediate acceptance of Professor Ana Tostões as the answer to my manifested interest in producing my dissertation under her coordination. Exploring the possibility of doing this research work during a semester at the EPFL, Professor Ana Tostões proposed this theme, to be developed through the analysis of a case study building – to be chosen later – located close to Lausanne. Materializing the idea I had in mind, but that had not been formalized until then, Professor Ana Tostões' coordination, along with her extensive knowledge in the area, constituted an essential motivation factor in the choice of the theme, the development and the concretization of this work.

c) The interest manifested by Professor Franz Graf (Professor at the EPFL and responsible for the research at the TSAM) to coordinate this dissertation work, alongside Professor Ana Tostões, and the guidance he always provided me. Firstly, through the essential help with the selection of the case study building and then by the orientation of my research and work, that would not have been so fruitful without Professor Franz Graf's extensive knowledge of Swiss Modern architecture and its preservation.

This initial interest in the theme was then enlarged when I completely understood the broad possibilities that it offered, allowing me to extend my research beyond the field of rehabilitation to the complementary areas of history and theory of architecture, as well as history and theory of conservation, which made it even more interesting and challenging.

On top of that, during the development of this research work, I got to discover the regional influence of the Modern Movement in Switzerland (in particular in Geneva, where my case study building is situated), as well as the fascinating life and works of Marc Joseph Saugey (1908-1971), its architect. The discovery of its history was complemented by visiting the Saugey Archives and the *Office du Patrimoine et de Sites*, organisation of the Canton of Geneva in charge of the listing of heritage buildings and sites.

Moreover, I also had the opportunity to learn directly from the architecture office responsible for the rehabilitation of the building – Meier+associés architects – and also their partner office – Oleg Calame architectes – about the interventions concerned in the rehabilitation project, having the chance to join them on a visit to the site, where I was able to see them being put into practice.

Consequently, the chance to understand how the preservation of buildings from the Modern Movement is being carried out in Switzerland, a leading country in protecting the architecture of this period, confirmed my personal interest in the field.

THE OBJECTIVES

The aim of this dissertation is the discussion of the issues involved in the rehabilitation of the architecture of the Modern Movement, mainly related to heritage, economic constraints and energy, gathered together under a global strategy of intervention for the future of the built *space* of this era.

The architecture and urban-plannin of the Modern Movement are a result of the radical transformations that have occurred, since the end of the nineteenth century, "due to industrialisation, the introduction of new materials, the transformations of construction techniques and new uses"[1]. Therefore, buildings and sets of this period, as well as urban schemes, are "recent, abundant in examples, wide-ranging and diverse in character"[2] which renders the recognition of their heritage value difficult.

Although Modern architecture is beginning to benefit from an increasing interest in its *matter* – apart from "the work of some *pioneers*"[3] – it is still "necessary to encourage better knowledge and understanding of this part of the heritage by drawing attention to its qualities and the wealth and diversity of its different forms"[4].

Furthermore, it is important to notice the menacing threats that the Modern Movement buildings have faced over the past two decades, and that led to the demolition of some or to drastic alteration of others, for example, the complete replacement of envelopes, the addition of external linings or massive insulation, all of which has contributed to the loss of the original architectural character and,

1 Council of Europe – *Recommendation No. R (91) 13 of the Committee of Ministers to Member States on the protection of the twentieth-century architectural heritage*, September 9 1991, p.1.

2 Idem.

3 Ibidem.

4 Ibidem.

consequently, a decrease in architectural value.

In particular, the "architecture of the second half of the twentieth century"[5], where the case study building can be included, is "widely regarded as leaky and poorly insulated"[6], resulting in the consumption of high amounts of energy for heating purposes. Thus, studies for better solutions concerning thermal improvement should be carried out, in order to promote more energetically efficient interventions, as well as more economic ones and, consequently, the sustainable development of the built heritage of these years.

The important study, as well as prime reference for the rehabilitation project of the case study building of this work, is the research developed for the housing precinct the *Lignon* – which is one of the introductory case studies of this dissertation. Developed by the TSAM, between 2008 and 2011, and under the coordination of Professor Franz Graf, it constituted an innovative pilot study on the rehabilitation of the architecture of this period, both in terms of methods and techniques used, being awarded with the Europa Nostra prize in 2013.

Through the analysis of a case study – the apartment building *Miremont-le-Crêt* – this research describes the rehabilitation intervention in progress, promoting its understanding through a previous contextualisation of its original project within the history of the architecture of Geneva, but also in the wider *panorama* of the Modern Movement worldwide. This is then followed by a synthesis of the solutions proposed, with a view to identifying systems, devices and construction technologies capable of responding to the conditions of contemporary comfort and the energy and security regulations in force, thus allowing, the investigation of the above mentioned constraints in the light of a concrete example.

THE OBJECT OF STUDY

The present dissertation aims to develop an extended study on the rehabilitation of a building of the Modern Movement. The example chosen is the apartment building *Miremont-le-Crêt* in Geneva, planned and built by the architect Marc Joseph Saugey, between 1953 and 1957.

It is considered by experts as a remarkable building in the history of housing, far beyond the context of Geneva, since there is no other building in the world with the same typology. Within the circumstances of its time, it is "one of the most beautiful examples of typological and formal invention in Switzerland in the field of collective housing"[7], being considered at the time, an answer to the formal rigidity of the proposals of the architects of the Modern Movement.

Taking into account its originality and the quality of its architecture and construction, *Miremont-le-Crêt* was listed as Cantonal monument in 2002.

Following its integration in the list of the built heritage of Geneva, it has become the object of a large rehabilitation programme, led by the Geneva-based architecture office Meier+associés architectes. This project, focused mainly on the envelope of the building, aims to respect Saugey's spirit and to

5 Franz Graf (dir.) – *La cité du LIGNON 1963-1971: étude architecturale et stratégies d'intervention*, *Patrimoine et architecture*: Cahier hors série, Gollion: Editions Infolio, 2012, p.19.

6 Idem.

7 Meier+associés architectes website. Available at : http://www.maa.ch/projects/91 [13.10.2014].

maintain the existing substance of the building, but at the same time taking into account the new standards of comfort and energy.

THE METHODOLOGY

In order to achieve the proposed objectives, the research process was divided into three different parts, which comprehend the theoretical research, the fieldwork and the analysis and treatment of the collected information.

The theoretical research was based on a literature review, through the analysis of historical and technical documentation, and can be separated into four different main research areas:

a) Preservation of the architecture of the Modern Movement;
b) Architecture and urban planning in post-War Geneva;
c) Life and works of the architect Marc-Joseph Saugey;
d) Project and construction of the apartment building *Miremont-le-Crêt*.

This research was based on the compilation of information acquired predominantly from monographic works, articles published in architectural journals (both recent and from the time of the construction of the building), architecture guides of Geneva and Switzerland, international charters and recommendations and local legislation.

This framework served, also, as the main support to the approach to the fieldwork.

The second part of the research process, the fieldwork, included several visits to Geneva, where document, technical and photographic information was collected. Visits were made to the following places:

a) The Saugey Archives[8];
b) The *Office du Patrimoine et des Sites*[9];
c) The architecture office Meier+associés architectes[10];
d) The architecture office Oleg Calame architecte[11];
e) The case-study building *Miremont-le-Crêt*[12].

In the Saugey Archives, several technical documents and drawings of the original project of *Miremont-le-Crêt*, as well as photographs of the building after its construction were gathered. It is important to mention that, apart from the photographs, all the other documents were in a very bad state of conservation. Then, in the *Office du Patrimoine et des Sites*, the *dossier* that assembles all the documents of *Miremont*'s heritage classification procedure was consulted.

8 Interviews with Mrs. Bernadette Odoni-Cremer, on April 4th 2014 and on May 26th 2014.
9 Interview with Mr. Yves Peçon, on May 8th 2014.
10 Interview with Ms. Laurence Boyé (project leader from Maa), on April 4th 2014.
11 Interview with Mr. Oleg Calame, on May 8th 2014.
12 Visit to the construction site with Ms. Laurence Boyé (Maa), on May 26th 2014.

Following this, in the architecture office Meier+associés architectes, the project leader – Mrs. Laurence Boyé – explained in detail the rehabilitation project for *Miremont-le-Crêt*, providing copies of some of the project's detailed drawings. In the same way, Mr. Oleg Calame, from Oleg Calame architectes, supplied as well drawings of the original building made by his office, based on Saugey's original drawings. Finally, accompanied by Mrs. Laurence Boyé, it was possible to visit the building and see the rehabilitation works on the façade, balconies and roof.

The third and final part of the research process included the treatment of all the information collected, both in the theoretical research and in the fieldwork, and its analysis and organisation, thus allowing the production of this written document and its technical drawings.

It is however essential to refer that the architecture office Meier+associés architectes did not authorized the full publication in this work of the copies provided. Therefore, to allow the understanding of the ongoing rehabilitation project, as well as to better study and document this example, two axonometric sectioned views of *Miremont-le-Crêt*'s façade were produced (scale 1:25). The first concerns the original project and the second the rehabilitation intervention. Although reproduced in part along this work, the complete full scale drawings are available in the attachments of this work.

THE STRUCTURE

The present work is organized in three chapters, in addition to the introduction and conclusion. The first two provide a general context to the theme and the case study. The last is a detailed analysis of the case study.

Introduction

01 | Preserving the legacy of the Modern Movement

The first chapter of the dissertation is focused on providing a general context to the theme of the rehabilitation of the architecture of the Modern Movement. It is divided into two parts. The first is dedicated to understanding the issues involved in the rehabilitation of buildings and building sets of the Modern Movement period. It tries to summarise the recent history of this preoccupation, the main problems and challenges that it comprises, as well as the existing organisations dedicated to its promotion and defence. The second offers the same type of analysis, but is dedicated to the specific case of Geneva, enumerating some recent important rehabilitation projects in the city. This chapter also includes the state of the art, naming the works of reference in the area, as well as the works of reference for the analysis of case study building – *Miremont-le-Crêt*.

02 | The post-War context in Geneva and the architect Marc-Joseph Saugey

The second chapter describes the historical context of Geneva in the post-War years, concerning its architecture and urban planning, including as well the study of the life and

works of Marc Joseph Saugey, one of its main characters. Consequently, it provides the necessary context to the next chapter and the corresponding analysis of the case study.

03 | *Miremont-le-Crêt*: case study

The third chapter is oriented towards the detailed analysis of the case-study building – *Miremont-le-Crêt*. It includes the description of its original project and construction, its process of classification as heritage and its implications, as well as the explanation of the ongoing rehabilitation project and the consequent solutions adopted.

Conclusion

In the conclusion to this work, an analysis is developed on the influence of the organization of the built *space*, the functional typology and the construction, in the solutions adopted on rehabilitation intervention. They are then interpreted within the framework of the rehabilitation of buildings of the Modern Movement, also with a programme of collective housing. Considerations on the final result of this work, its validity and possible future developments are also expressed.

The attachments include the two 1:25 sectioned axonometric views of *Miremont-le-Crêt*'s façades produced by the author and based on the detailed drawings provided by the architectures offices involved in the rehabilitation of the apartment building. As a complement to this work some other documents are also supplied: a biography of Saugey, the text «*L'espace habitable*» written by Saugey about the project of *Miremont-le-Crêt*, and some original drawings and photographs of the building, collected at the Saugey Archives.

PRESERVING THE LEGACY OF THE MODERN MOVEMENT 01

01.1 Preserving the legacy of the Modern Movement

"Memory has true value only if the traces of the past and the project for the future are held together…"[1]

01.1.1 "The Modern Movement purpose: a better quality of life for all!"[2]

The architectural legacy of the 20th century, commonly referred as Modern architecture, comprehends "the set of buildings built in a particular moment of the architectural production – the Modern Movement – trivialized between 1920 and 1965"[3]. The architecture of this period was "marked by the emergence of new values and the setting of new technical, functional, and formal determinations"[4]. The creations of the Modern architects were "rational, functional, innovative and rich, with strong political and cultural identities – futuristic in all senses, and at all costs, and bathing in an optimistic faith in progress"[5]. They aimed to "meet the [urgent] challenges of modern life"[6], which was made possible by the use of the new materials, technologies and construction methods.
However, despite the fact that Modern architects shared the same ideologies, "Modern Movement does not represent a coherent, identifiable unity but [rather] covers a wide variety of trends with different approaches, depending on individual opinions, political climate, social and cultural context and time"[7].

01.1.2 Why should the legacy of the Modern Movement be preserved?

A short period of time separates the present from the achievement of the Modern Movement buildings, restraining the recognition of their value and need of preservation.
Whereas ancient buildings are recognized for having a "heritage, cultural or monumental value"[8] and

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1 Italo Calvino in Dennis Sharp – "Modern architecture's diaspora", *Docomomo journal,* nº.24, Delft: Delft University of Technology, 2001, p.28.

2 Ana Tostões – "Editorial: Modern and sustainable" in Ana Tostões; Ivan Blasi – *Docomomo journal*, nº.44, "Modern and sustainable", Barcelona: Ingoprint, 2011, p.3.

3 "(...), o conjunto de edíficios construídos num momento particular da produção arquitectónica – o Movimento Moderno – banalizado entre 1920 e 1965." in Matilde Cardoso – *Património Moderno: do conceito à intervenção*, Dissertação para a obtenção de grau de mestre em arquitectura, Lisboa: IST - Universidade Técnica de Lisboa, 2007, p.5.

4 "(...), marcada pelo «surgimento de novos valores e pela configuração de novas determinações técnicas, funcionais e formais.»" in Victor Pérez Escolano – "Inventário da Arquitectura do Movimento Moderno" in Matilde Cardoso – op. cit., p.28.

5 Maristella Casciato – "Modern architecture is durable: Using change to preserve" in Dirk van der Heuvel et al. - *The challenge of change. Dealing with the legacy of the Modern Movement. Proceedings of the 10th International Docomomo Conference*, Amsterdam: IOS Press, 2008, p. xiii.

6 "(...) «capaz de responder aos desafios da vida moderna.»"Ana Tostões – *Cultura e Tecnologia na Arquitectura Moderna Portuguesa*, 2002, pp. 8-9, in Matilde Cardoso – op. cit., p.28.

7 Hubert-Jan-Henket – "Back from utopia. The challenge of the Modern Movement" in Hubert-Jan-Henket; Hilde Heynen - *Back from Utopia, The Challenge of the Modern Movement*, Rotterdam: 010 Publishers, 2002, p.29.

8 "(...), valor patrimonial, cultural e mesmo monumental, (...)" in Matilde Cardoso – op. cit., p.37.

therefore a need to be conserved, "the same cannot be said of the buildings of the 20th century – in particular the ones of the Modern Movement – due to their young age"[9].
Nonetheless, as with every other cultural asset, an attitude of preservation should be adopted, in order to guarantee their future.

In fact, in the last decades, the value of the architectural legacy of the Modern Movement has been gradually recognized, although mainly through the "appreciation of its masterworks"[10]. However, not only the "iconic and outstanding works"[11] should be preserved, but also the "less well-known examples, which have significance for the architecture and history of [this] period"[12].
The continuity of their lives, "both [of] the icon and the ordinary, as elements of an economically driven world, depend first[ly] upon a shared recognition of their cultural and social value and second[ly] upon their continuing economic viability"[13].
In addition, the lack of maintenance and conservation will result in the alteration of their original substance, "regardless of the durability for which they were designed"[14], jeopardizing their future.
The idea that "the testimony left by the Modern Movement is part of our cultural heritage and therefore has to be preserved and valued"[15] is getting generalized.
Nevertheless, it is necessary to understand their significance in order to discern which of these buildings should be conserved. "The role of its originality, identity and unity in the country, region or community to which [they] belong"[16], economic reasons or even, purely emotional ones can justify their preservation, "as it is the case of buildings that have become icons for their quality as evidence of an epoch and ideology, or simply by its plastic beauty and formal reasons"[17]. Sometimes the simple fact that they managed to resist until the present times can also be a motivation factor for their conservation.

However, the preservation of the Modern legacy is full with contradictions. "If ephemerality was a feature for which [Modern architects] specifically fought to achieve in their architecture, (…), [why should these buildings be preserve?] (…), wouldn't it be easier to leave them alone and allow them to become ruins? Or wouldn't it be more convenient to destroy them and build them again?"[18] These

9 "(…), devido à sua tenra idade, (...)" in Idem.
10 "Introduction" in Dirk van der Heuvel et al. – op. cit., p. xv.
11 Idem, pp. xiii-xiv.
12 Council of Europe – op. cit., p.2.
13 Hubert-Jan-Henket – op. cit., p.16.
14 "(...), independentemente da durabilidade para a qual foram pensados." in Matilde Cardoso – op. cit., p.37.
15 "(…), o testemunho deixado pelo Movimento Moderno faz parte do nosso legado cultural e, por isso, tem de ser prevervado e valorizado." in Idem, p38.
16 "(…), do papel da sua originalidade, identidade e unidade no país, região ou comunidade em que se inserem." in Ibidem, p.9.
17 "(…), como é o caso dos edifícios que se tornaram ícones pela sua qualidade enquanto testemunhos de uma época e ideologia, ou simplesmente pela sua beleza plástica e formal." in Ibidem, p.38.
18 "se a efemeridade era uma característica pela qual [os arquitectos modernos] especificamente lutavam por atingir na sua arquitectura, (...), não será mais fácil deixá-los em paz e permitir que se tornem ruínas? Ou não

questions synthetize the paradox of the preservation of Modern architecture – "buildings constructed according to the apology of innovation and rupture with the past have become, themselves, heritage necessary to safeguard, preserve and conserve."[19].

On the other hand, the issues raised by the intervention on the architectural legacy of the Modern Movement are not structurally different from the ones regarding the conservation of more ancient architectural heritage, however, the inherent characteristics of Modern architecture, either "conceptual, formal or programmatic"[20], demand the "establishment of specific criteria and intervention measures, different from those applied to the historical heritage"[21].

The main challenge for their conservation rises in "the confrontation between their status as heritage"[22] and the structural changes of the contemporary society, "which has modified its own scale of values, [in] a physical, economic and functional context of rapid transformation"[23]. Therefore, it is "difficult to maintain the architectural creations of the Modern Movement in such a way that they still reflect the original intentions of their designers"[24]. As a consequence, "to conserve means we should acknowledge those structural changes, rather than attempting to keep all Modern heritage in its original state."[25]

Thus, the "objective should be to create a grid of criteria taking into account all the significant characteristics of the architecture, while remaining compatible with the conservation or restauration project. The challenge in this is to envision changes without betraying the legacy and spirit of the architecture of the 20th century."[26]

As a result, when preserving the Modern legacy, the answers to the problems posed must be found in "the own origins of the Modern Movement architecture"[27]. This means that "the challenges that Modern architects have proposed to answer have to be the motto for the resolution of the problems posed [today] by preservation"[28].

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seria mais conveniente destruí-los e construir de novo?" in Hilde Heyen – "Transitoriness in modern architecture", *Modern Movement Heritage*, 1998, pp.29-35 in Matilde Cardoso – op. cit., pp.37-38.

19 "(...), edifícios construídos segundo a apologia da inovação e da ruptura com o passado se terem tornado, eles próprios, em património que é necessário salvaguardar, preservar e conservar, (...)" in Matilde Cardoso – op. cit., p.6.

20 "(...), conceptuais, formais e programáticas, (...)" in Idem, p.37.

21 "(...), o estabelecimento de critérios e medidas de intervenção específicas, distintas daquelas aplicadas no património histórico." in Ibidem.

22 Maristella Casciato – *op. cit.*, pp. xiii.

23 Idem.

24 "Introduction" in Dirk van der Heuvel et al. – op. cit., p.xv.

25 Maristella Casciato – op. cit., pp. xiii.

26 Idem.

27 "(...), as próprias origens da arquitectura do Movimento Moderno" in Matilde Cardoso – op. cit., p.44.

28 "(…), o desafio a que os arquitectos modernos se propuseram responser terá de ser o mote de resolução dos problemas postos pela preservação." in Idem.

01.1.3 Main issues: *sustainability* – a transversal concept

The most recent debates on the preservation of the Modern Movement legacy employed a new term – *sustainability* – which "describes an attitude as well as an approach to design, construction and operational issues"[29], being directly associated with "the two main contemporary issues: *economy* and *energy*"[30]. This concept gains an additional dimension in the preservation of Modern architecture, once it is associated to other of its inherent concerns, such as *durability* and *authenticity*.

The last decades witnessed an increasing concern with the environment, which resulted in the development of a series of efforts aiming to preserve the world's natural resources. This preoccupation "entered into the dialogue around architecture and preservation"[31], leading several countries to adopt rating systems, to evaluate the buildings' performance, "whether new or old"[32], which resulted in the establishment of rigid energetic standards.

Modern Movement envelopes are often erroneously regarded "as bad environmental design", and to justify their low energetic performances it is often argued that many of them were built in a time when energy was cheaper[33]. However "the energy use was then only a fraction of what is needed or desired today"[34].

Modern Movement is much more than "a style, perceived in a skin-deep point of view and superficially adopted as a simple form, as a modern shape; [it has rather demonstrated a major consideration] with such issues, seeking for efficiency and economy, an accurate use of materials, a design approach that incorporates intelligent saving resources in order to create a better world"[35]. Those include, as examples, the orientation of buildings according to the prevailing winds and the best solar exposure, as well as "the use of *brise-soleils*, large pivoted doors or large overhangs"[36].

As a consequence, in the context of a preservation intervention, the concept of *sustainability* present in the original design and construction of the Modern Movement buildings must be once more pursued, seeking the optimization of "the performance of the buildings and its exterior envelopes"[37]. It requires a "reflexion on the building physics, [and on] the relation between heritage, energy and economy"[38], not only to be analysed as "Modern Movement concepts, [but also to be used as key features for] Modern Movement intervention"[39].

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29 Theodore Prudon – "The Modern Movement and Sustainability: Yesterday, Today and in the Future", in Ana Tostões; Ivan Blasi – op. cit., p.4.
30 Ana Tostões (2011) – op. cit., p.3.
31 Theodore Prudon – op. cit., p.4.
32 Idem.
33 Cf. Ibidem.
34 Ibidem.
35 Ana Tostões (2011) – op. cit., p.3.
36 Idem.
37 Theodore Prudon – op. cit., p.5.
38 Ana Tostões (2011) – op. cit., p.3.
39 Idem.

Another important issue of the preservation of Modern buildings is *durability*. To fully understand this concept, it is important to comprehend that the Modern Movement's "search for new forms was [only] possible, (…), due to the technological advances [that resulted in the development of new] materials, [as] steel, reinforced concrete and glass"[40]. Produced by industrial processes that conferred them the features of repetition and uniformity, the new construction materials could be rapidly assembled and replaced.[41] However, the experimental character of the technologies employed, as well as the "lack of testing and control of [the materials'] behaviour"[42], resulted in several failures.

As a consequence, "*durability* is not always encountered in these Modern structures, [which by] their functional specificity and experimentation with materials"[43] easily become obsolete. Moreover, since they were "tailor-made for particular functions, [they now] become, easily and quickly, operationally, technically and economically redundant when those functions change"[44].

Despite their temporal character and the idea that they were not built to last for long, the simple fact that most of them still exist is, in a certain way, a proof of their relative *durability*.

This way, although requiring reinvestment, they can be recycled and, on the contrary to what is sometimes thought, the "impetus to build new"[45] as an answer to the obsolesce of certain Modern buildings is in fact opposed to the concept of *sustainability*.

However, "the work of conservation of experimental materials is complex and uncertain and its replacement by materials and construction systems today is very delicate"[46]. This issue raises another type of *sustainability,* that of *material authenticity*.

Apart from the steel, reinforced concrete and glass, the Modern Movement architects also worked with other new materials such as lead, lead paint or asbestos[47], which are nowadays recognized as having a serious impact on human health and on the environment.

As a result, either due to their toxicity, energetic inefficiency or deterioration, the Modern Movement materials need often to be replaced in restauration interventions.

Their replacement should be carefully planned and the solutions adopted should respect and preserve as much as possible their original appearance, and the building's *material authenticity*, which is reflected on its own *sustainability*.

The value of a Modern building depends, not only on "the technological advancement that was

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40 "A procura de novas formas foi possível, (...), devido aos avanços tecnológicos e materiais: o aço, o betão armado e o vidro, (...)" in Matilde Cardoso – op. cit., p.41.

41 Cf. Idem.

42 "(…), falta de teste e control de comportamaneto, (...)" in Idem, p.42.

43 Theodore Prudon – op. cit., p.5.

44 Idem.

45 Ibidem.

46 "(...), o trabalho de conservação de materiais experimentais é complexo e incerto e sua substituição por matérias e sistemas construtivos actuais é muito delicada." in Matilde Cardoso – op. cit., p.55.

47 Cf. Theodore Prudon – op. cit., p.7.

its construction"[48], but also on "the creative and innovative effort made in its conception"[49]. Apart from the conservation of the buildings' original materiality, manifested in the concept of *material authenticity*, it is also imperative to preserve the buildings' intrinsic "social, technical and aesthetic values"[50]. The preservation of the Modern building's "original principles and generating functions"[51] is synthetized in the notion of *conceptual authenticity*, which is again essential to the *sustainability* of the Modern Movement buildings.

In conclusion, these examples "illustrate how nuanced and broad is the concept of *sustainability* [applied to the preservation of the Modern Movement legacy], (…), [that, as stated by Theodore Prudon], is not just about carbon and trees but it must be integral to all the decisions, (…), involved in the preservation of the built environment"[52].

01.1.4 The role of *Docomomo*

In the 1980s, "many of the Modern masterpieces had already been demolished"[53] or had suffered drastic changes, in part as a consequence of the absence of recognition and protection, but also due to the degradation of their original functions and technological innovations.
This context led to the creation of *Docomomo* International in 1988, marking "the beginning of the urgency of conserving the architecture of the Modern Movement"[54]. This non-profiting organisation, whose acronym stands for *DOcumentation and COnservation of Buildings, Sites and Neighbourhoods of the MOdern MOvement*, was founded by architects Hubert-Jan-Henket and Wessel de Jonge[55] at the School of Architecture of the Technical University of Eindhoven, in the Netherlands.[56]
The aim of this organisation is above all "the understanding of the significance of architectural heritage [of the Modern Movement], along with the need for its conservation, as well as the understanding of the project as the main instrument and stimulus"[57] for the preservation of this legacy.
Its main mission is to foster the development of interest in the Modern Movement legacy - protecting

48 Cf. Matilde Cardoso – op. cit., p.41.
49 "(…), ao esforço criativo e inovador empreendido na concepção, (...)" in Idem.
50 "(…),valores sociais, técnicoss e estéticos, (...)" in Ibidem, p.40.
51 "(…), princípios geradores e funções originais." in Ibidem.
52 Theodore Prudon – op. cit., p.7.
53 *Docomomo* International website – mission. Available at: http://www.docomomo.com/mission.php [10.10.2014].
54 "(…) o início do entendimento da urgência de conserver a arquitectura do Movimento Moderno." in Matilde Cardoso – op. cit., p.56.
55 Hubert-Jan-Henket is also a professor and Wessel de Jonge a research fellow. Cf. *Docomomo* International website – history. Available at: http://www.docomomo.com/history.php [10.10.2014].
56 In 2002, the headquarters of *Docomomo* International moved to Paris (hosted by the *Cité de l'Architecture et du Patrimoine*) and in 2010 to Barcelona (hosted by the Fundación Mies van der Rohe). Presently, the headquarters of *Docomomo* International are located in Instituto Superior Técnico – Lisbon University. The present chair is Ana Tostões (architect and professor at IST). Cf. *Docomomo* International website – history.
57 "A compreensão do significado deste legado arquitectónico, a par com a necessidade da sua conservação, e o entendimento do projecto como seu principal instrumento e estímulo, (...)" in Matilde Cardoso – op. cit., p.56.

important buildings that are under threat, promoting the exchange of ideas regarding its conservation technology, history and education[58] – next to the public, competent authorities, professionals and educational community.

In order to encourage the development of a deeper study and knowledge of this legacy, *Docomomo* also promotes the documentation of the original Modern Movement works, through records, photographs, drawings, archives and other documents, as well as monitories and disseminates the development of appropriate techniques and methods of conservation.[59]

Docomomo International has experienced a rapid growth since its creation, establishing itself as a renowned organisation in the fields of conservation and architectural culture. Its effectiveness is the consequence of its ability to form interdisciplinary and international groups[60], reuniting "historians, architects, town-planners, landscape architects, conservationists, teachers, students and public officials"[61]. *Docomomo*'s activities include international biannual conferences, international seminars, international specialist committees[62], publications (including the *Docomomo journal*, books, proceedings and dossiers) and safeguarding campaigns.[63] Additionally, *Docomomo* also works in close collaboration with other organisations[64] responsible for the conservation of the world's built environment, such as UNESCO, ICOMOS and UIA.

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58 Cf. *Docomomo* International website – mission.

59 Cf. *Docomomo* International website – Eindhoven statement. Available at: http://www.docomomo.com/eindhoven.php [10.10.2014].

60 "At present, *Docomomo* International includes 59 chapters and more than 2,300 members" in *Docomomo* International website – mission.

61 *Docomomo* International website – mission.

62 There are four International Specialist Committees, comprising experts in in modern architecture, theory and landscape, and working under the supervision of *Docomomo* International: Registers, Technology, Urbanism+Landscape and Education+Theory. Cf. *Docomomo* International – Boards and Committees. Available at: http://www.docomomo.com/specialist_committees.php [10.10.2014].

63 Cf. Matilde Cardoso – op. cit., p.57.

64 Other *Docomomo* International's partner organisations are ArchiAfrika and THICOM (Tugendhat House International Committee). Cf. *Docomomo* International website – links. Available at: http://www.docomomo.com/links.php [10.10.2014].

01.2 Preserving the Modern Movement's legacy in Geneva: case studies

In the recent years, the number of Modern Movement buildings listed as historical monuments in Geneva increased considerably. However, when comparing these to the amount of protected ancient buildings, their number is still little, especially when considering the buildings built after WWII. This may come as a consequence of the fact that Geneva legislated the protection of heritage rather late. [65]

Le Corbusier's *immeuble Clarté* was the first building of the 20th century to be listed as a historical monument, in 1986. Yet, not before being threatened with demolition, but "saved, (…), thanks to an initiative of the Geneva branch of the Federation of Swiss architects"[66].
In fact, although "groups of buildings of the nineteenth and early twentieth centuries benefited from various protection measures since the eighties, regarding the buildings built after 1920, there were often concerned citizens with architecture itself, (…), who have worked for their conservation"[67].
Taking as an example the work of Marc-Joseph Saugey – the architect that projected *Miremont-le-Crêt*, the case study of this dissertation – his cinema Manhattan, was only saved from demolition due to the pressure of the public. On the contrary, another of his buildings, the *Gare-Centre* had a different fate, being regrettably demolished in 1987. Saugey's *Terreaux-Cornavin* also underwent in 1985 a lamentable transformation. Nonetheless, there are also successful cases, as "*La Tourelle* [building], also from Saugey, [which] was the object of a respectful [intervention] on the existing architecture"[68].

In fact, during the last decade, several exemplar restauration works were carried out in Geneva, focusing on its 20th century architectural legacy. Moreover, the number of listed Modern buildings is also growing significantly fast, showing the increasing concern for this heritage. The following case studies constitute representative examples of the restauration works on Modern Movement architecture across the city of Geneva.

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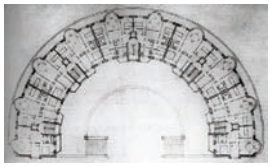
65 The first law on the conservation of monuments and sites was only voted in 1920, remaining unchanged until 1976, when the actual law was adopted. Cf. Pierre Baertschi; Sabie Nemec-Piguet – "Le patrimoine architectural, Genève et l'héritage du Xxe siècle" in Pierre Baertschi (dir.) – *Patrimoine et architecture, nº*.9, Dossier: *Miremont-le-Crêt (1956-1957)*, 2000, pp.6-7.

66 "(...), été sauvée de la démolition grâce à une initiative de la section genevoise de la Fédération des architectes suisses." in Idem, p.7.

67 "(...), les ensembles bâtis du XIXe siècle et du début du XXe siècle ont bénéficié de diverses mesures de protection dès les années quatre-vingt. En ce qui concerne les immeubles construits après 1920, ce sont souvent des citoyens intéressés à l'architecture elle-même, (...), qui ont oeuvré en faveur de leur conservation." in Ibidem.

68 "La Tourelle a fait l'object de mesures d'entretien respectueuses de l'architecture existante." in Ibidem.

01.2.1 The *Maison Ronde* (1927-1930; 2000-2001)



001. *Maison Ronde*. Type floor plan. FBA Archives.

002. Maurice Braillard, *Maison Ronde* (1927-1930). View of the interior courtyard. FBA Archives.

003. Maurice Braillard, *Maison Ronde* (1927-1930). View of the exterior façade. FBA Archives

Maurice Braillard's *Maison Ronde* is a group of five buildings – including 70 apartments and 26 shops – conceived from 1927 and built between 1929 and 1930. With a semicircle urban implantation, both the building's entrances and the shops are oriented towards the inner courtyard, whose double floor plinth is "delimited on either side by wide stairways"[69]. The garages are located in the outer façade, "freeing completely [this] courtyard, [which becomes] a place of access and exchanges for pedestrians"[70].

Designed for middle-class tenants, "who, according to the architect, needed both affordable and healthy homes, practical and easy to maintain"[71], the *Maison Ronde*'s apartments have 2 or 3 bedrooms. The main rooms are oriented towards the exterior façade, while the services and the stairwells face the inner courtyard. The bow-windows that mark the rhythm of the exterior façade "provide [also] a generous extension to the living rooms"[72]. The roof, "originally accessible, gathered the laundries and drying areas"[73].

One of the architect's best achievements, the *Maison Ronde* "brings together the most significant themes of his work: a new mode of architectural expression appropriate to the material (reinforced concrete), [and] the articulation of private and public spaces in such a way as to encourage appropriation and identification"[74]. Its heritage value was recognised by the Canton of Geneva in 1995, with the building listed as a historic monument.

At the time, since no major renovation works had been performed since the achievement of its construction, the building was extremely deteriorated. The facades' (made of reinforced concrete and brick coated with plaster) were highly carbonated, while some of the original window frames had

69 "(...), délimité de part et d'autre par de larges escaliers." in Isabelle Charollais et al. – *L'architecture à Genève, 1919-1975*, vol.1, Lausanne: Editions Payot, 1999, p.239.

70 "(...), libérent totalement la cour comme lieu d'accès et d'échanges pour les piétons." in Idem.

71 In *Fondation Braillard Architetes*' website. Available at: http://www.braillard.ch/en/sauvegarde/sauvegarde/maison-ronde-2/ [13.10.2014].

72 Idem.

73 "(...), accessible à l'origine, reagroupe les buanderies et étendages, (...)" in Isabelle Charollais et al. (1999) – op. cit., vol.1, p.239.

74 In *Fondation Braillard Architetes*' website.

been replaced by PVC ones.[75]

After a preliminary survey commissioned by the *Office du Patrimoine et des Sites* to the architect Pierre Bosson, in 1998, followed closely by the *Fondation Braillard Architectes* and the building's co-owners, the restauration works on the building's envelope took place from 2000 to 2001.[76]

As a consequence the building's "original materiality was preserved whenever possible, the items that were missing were restored, when their presence was considered significant, (…), the structural defects causing degradations were corrected, (…), with the help of modern materials and technology"[77].

This way, the façade's coatings were entirely restored, including the treatment of the carbonation on both the concrete and the plaster. The existing original bow-windows were conserved and repaired, while the other windows were replaced by prototypes designed according to the original ones, though providing an improved thermal comfort. The stairwells' windows – "altered by successive renovations"[78] were also replaced by new ones, respecting the original design, in every one of the five buildings. Additionally, the building's original lighting devices were also replaced by identical new units.[79]

All these interventions graciously returned the building to its original exterior appearance.

004. *Maison Ronde* (2014). View of the exterior façade after the rehabilitation works.

005. 006. *Maison Ronde* (2014). Exterior façade and the interior courtyard.

75 Cf. Pierre Bosson – "La restauration des façades de la Maison Ronde (2000-2001)" in Sabine Nemec-Piguet (dir.) - *Patrimoine et architecture,* nº.12-13, Dossier: *La maison ronde, patrimoine architectural et modèle urbain*, Geneva: Georg Editeur SA, 2003., pp.44-56.

76 Cf. Pierre Bosson – op. cit., pp.54-56.

77 "La matière originale a été conservée chaque fois que possible, les éléments qui avaient disparu ont pu être restitués, lorsque leur présence a été considérée comme significative, (...), les défauts structurels entraînant des dégradations ont été corrigés, (...), avec l'aide de matériaux et de techniques contemporains." in Sabine Nemec-Piguet – "Éditorial" in Sabine Nemec-Piguet (dir.) – op. cit., p.4

78 "altérées par les rénovations successives" in Pierre Bosson – op. cit., p.51.

79 Cf. Idem., pp.44-56.

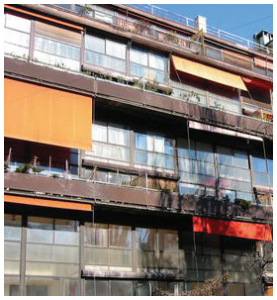
01.2.2 The *Immeuble Clarté* (1928-1932; 2007-2011)

007. *Immeuble Clarté*. Fred Boissonnas (n.d.). FLC.

The apartment building *Clarté* was conceived by Le Corbusier and his cousin Pierre Jeanneret under the commission of the Geneva ironwork industrial Edmond Wanner. Built by the latter, between 1931 and 1932, it was the result "of long preparatory studies, which began in 1928, and intended to provide plans of rental housing types"[80]. Apart from the typological innovations, the building's revolutionary supporting structure and the construction methods applied made it "the very symbol of the introduction of Modernity in Geneva"[81].

Originally part of an integral neighbourhood master plan, from which only the *immeuble Clarté* was achieved[82], the apartment building incorporates four of Le Corbusier's five points: a punctual structure allowing a free floor plan, a free façade, horizontal windows and a roof-terrace[83].

Its modular steel structure, developed by the engineer Robert Maillart, was "assembled using the latest technology of arc welding"[84], making it "the first building in Geneva whose metal frame [made of prefabricated elements] was [entirely] welded on site"[85], liberating the building's façades and interior walls and allowing a great freedom in the design of the apartments.



008. *Immeuble Clarté*. Condition of the building before the rehabilitation (n.d.).

Intended to accommodate "international officials and tenants of liberal professions"[86], its 48 apartments, distributed along 8 floors, offer a "great typological variety - duplex or single-level, traverse or not"[87], ranging "from studios to 6 bedroom apartments"[88]. Opened towards wide exterior balconies, they all have distinguished spatial qualities.

The building's completely glazed opposed façades were also "the object of a large number of technical innovations, such as sliding windows over bearings"[89], and its stairwells are lit by a vaulted roof made of translucent glass tiles.

Threated several times of demolition, it "was preserved by the mobilization of the architectural community of Geneva"[90], being listed as an historical monument in 1986. However, the "successive

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80 "(...), de longues études préparatoires, amorcées en 1928 déjà, et destinées à fournir les plans d'immeubles locatifs type." in *Fondation Le Corbusier*'s website. Available at : http://www.fondationlecorbusier.fr/corbuweb/morpheus.aspx?sysId=13&IrisObjectId=4834&sysLanguage=en-en&itemPos=21&itemCount=78&sysParentId=64&sysParentName= [11.10.2014].

81 "(...), le symbole même de l'introduction de la modernité à Genève, (...)" in Isabelle Charollais et al. (1999) – op. cit., vol.1, p.251.

82 Cf. Idem.

83 Cf. Ibidem. and Catherine Courtiau - *Xxe, Un siècle d'architectures à Genève. Promenades*, Gollion: Editions Infolio, 2009, p.49.

84 "(...), est assemblée en utilisant la technologie toute nouvelle de la soudure à l'arc." in Isabelle Charollais et al. (1999) – op. cit., vol.1, p.251.

85 "(...), le premier batiment genevois dont l'ossature métallique fut soudé sur place." in Catherine Courtiau (2009) – op. cit., p.49.

86 "(...), des hautes fonctionnaires internationaux et à des locataires de profession libérales, (...)" in Idem.

87 "(...), les appartements d'une grande variété typologique - duplex ou d'un seul niveau, traversants ou non, (...)" in Ibidem.

88 "(...), du studio ou logement de huit pièces." in Isabelle Charollais et al. (1999) – op. cit., vol.1, p.251.

89 "(...), fait l'objet d'un grand nombre d'innovations techniques, comme le fenêtre coulissante sur billes." in Idem.

90 "(...), a pu être préservé par la mobilisation de la communauté des architectes genevois, (...)" in République

unhappy interventions"[91] in the building, as well as the deterioration of its envelope led the State Council to force the execution of restauration works.

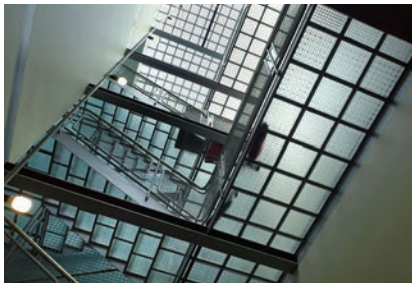
As a consequence, a renovation intervention was realised, between 2007 and 2011, under the direction of the architecture office Chambrier & Dutheil, including the restauration of the building's envelope (façades and roof), public areas (stairwells and cellars) and the modernisation of the installations (heating, ventilation, plumbing and electricity).[92] The objective was to restore the *Clarté*'s original substance and appearance.

The restoration works implied the removal of all the metallic elements of the building's façade, which had to be sanded and repainted in factory, before reassembled. Also the façades' single glazing was replaced by an insulating glazing solution.[93] Thus, "the outer walls had to be temporarily removed and replaced by wood, while the building remained occupied"[94].

The building's original colours were restored, following chromatic analyses led by specialists. Also, "the bright orange blinds, dating from the first renovation in 1974-75"[95] were substituted by more neutral ones, according to the records of the original building.

Nonetheless, some changes were made: the heavy wood blinds were motorized, and the balconies' floorings wooden boards, "which were perpendicular to the facade, are now parallel"[96].

009. **010.** *Immeuble Clarté*. Exterior façade (n.d.) and entrance to the building (2013).



011. **012.** *Immeuble Clarté* (2014). Interior stairwell.

013. **014.** *Immeuble Clarté*. Roof (n.d.) and ground-floor (2011).

et Canton de Genève: Service communication et information - *Communiqué de presse: L'Etat de Genève soutient la restauration de l'immeuble Clarté de Le Corbusier*, August 24 2007. Available at: http://www.ge.ch/dcti/presse/2007-08-24_conf.pdf [11.10.2014].

91 "(...), des malheureuse interventions successives, (...)" in Catherine Courtiau (2009) – op. cit., p.49.

92 Cf. République et Canton de Genève: Service communication et information – op. cit.

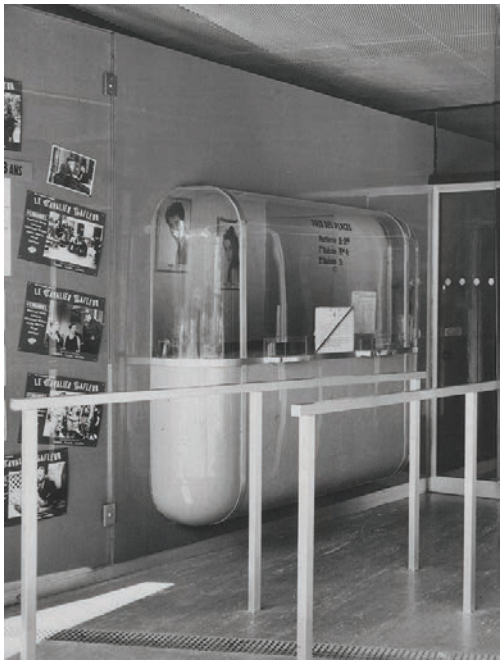
93 Cf. Idem.

94 "(...),les parois extérieures ont quand même été démontées et provisoirement remplacées par du bois, alors que l'immeuble restait habité." in Antoine Grosjean – " L'immeuble Clarté a fait peau neuve", *Tribune de Genève*, 2011. Availavle at: http://archives.tdg.ch/geneve/actu/immeuble-clarte-fait-peau-neuve-2011-08-10 [11.10.2014].

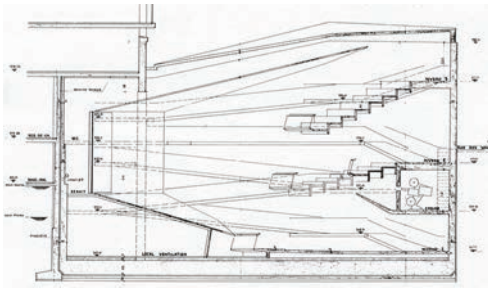
95 "L'orange vif des stores en tissu, datant d'une première rénovation en 1974-75, (...), in Idem.

96 "(...),qui étaient perpendiculaires à la façade, sont désormais parallèles." in Ibidem.

01.2.3 The cinema Manhattan (1955-1957; 1994-1996)



015. Marc J. Saugey, cinema *Le Paris* (Manhattan) (1955-1957). Box office.



016. 017. Marc J. Saugey, cinema *Le Paris* (1955-1957). Section and view of the cinema room.

The cinema Manhattan (originally *Le Paris*) was conceived and built by Marc Saugey between 1955 and 1957, being the last of three cinemas projected in Geneva by the architect and one of his most outstanding works. In Manhattan, Saugey "invent[ed] a "type" of cinema never imagined before"[97], both due to "the audacity of its structure, (…), [and] the technological evolution of the projection means"[98].

Installed under a commercial and housing building, the only exterior signs of its existence are "the "V" breezeway, the box-office in the form of a glass bubble, [and] the glazed aluminium bars and doors"[99]. Placed inside a cubic reinforced concrete box "the architecture of the room results of its spatial structure, completely independent of the above buildings"[100] and its envelope. Developed in collaboration with the engineer Pierre Froidevaux, the metallic frame supports the three galleries and the access ramps. This invention "previously required a modification of the support structure of the building that is superimposed on the cinema, (…), [in order] to free [the room] from the raiding higher loads"[101].

97 "(...), invente un "type" de salle de cinéma jamais imaginé auparavant." in Isabelle Charollais et al. (1999) – op. cit., vol.2, p.559.

98 "(...), l'audace de ses structures, (...), l'évolution technologique des moyens de projection." in Idem.

99 "Une marquise en «V», une caisse sous forme d'une bulle en verre, des barres et des portes vitrées en aluminium, (...)" in Philippe Meier – *Marc-Joseph Saugey, Architecte*, Genève: FAS, section Genève, 2012, p.44.

100 "l'architecture de la salle résulte de sa propre structure spatiale, totalement indépendante de celle des immeubles au dessus, (...)" in Isabelle Charollais et al.(1999) – op. cit., vol.2, p.559.

101 "(...),a requis au préalable une modification de la structure porteuse de l'immeuble que se superpose au cinema, (...), permettant de se libérer des descentes de charges supérieurs." in Philippe Meier – op. cit., p.44.

The succession of ramps, replacing the traditional foyer, originates a *promenade* "in accordance with the modernist conception of the room"[102], introducing movement in it.

Saved from demolition in the 1990s, by the *Association pour la sauvegarde du cinéma Manhattan*, whose members were mainly architects and cultural figures, the cinema Manhattan was listed as historical monument in 1993.[103]

Between 1995 and 1996 it was restored to its original state by the Geneva based architecture office Devanthéry & Lamunière, and was transformed into the auditorium Arditi-Wilsdorf, an audience hall for the University of Geneva. The architects' answer to the new requirements of use was achieved without distorting the existing structures[104].

018. Cinema Manhattan (auditorium Arditi-Wilsdorf). View of the cinema room (n.d.).

019. Cinema Manhattan (auditorium Arditi-Wilsdorf). View of the access ramps (n.d.).

020. Cinema Manhattan (auditorium Arditi-Wilsdorf). View of the room from the ramps.

01.2.4 The *Mont-Blanc Centre* (1951-1954; 2004)

The *Mont-Blanc Centre* complex was the first of six curtain-walled multipurpose buildings that Marc Saugey built in the city centre of Geneva – and today it is the only remaining one[105].

It announced an ambitious project of modernisation of the city centre – envisioning the demolition of the ancient urban tissue – that was never completed.[106]

Conceived between 1951 and 1954, its construction was divided into two phases: "the first consisted in the definition of the angle between the two streets, with the cinema *Le Plaza* in the middle; the second established a built-continuity with two office buildings placed over a commercial gallery"[107] (which were built only latter). The result was an innovative typology, imported from the USA, which "associates shops, restaurants and a cultural space, the cinema *Le Plaza*, with office buildings"[108].

021. Marc J. Saugey, *Mont-Blanc Centre* (1951-1954).

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102 "(...),en accord avec la modernité de la concption de la salle." in Isabelle Charollais et al.(1999) – op. cit., vol.2, p.559.

103 Cf. Pierre Baertschi; Sabie Nemec-Piguet – op. cit., p.9 and Bruno Reichlin – « DOCOMOMO-Suisse à l'Institut d'architecture de l'université de Genève in Sabie Nemec-Piguet – op. cit., p.43.

104 Cf. Pierre Baertschi; Sabie Nemec-Piguet – op. cit., p.9

105 Cf. Franz Graf – "Construction History and Its Role in the Conservation of Contemporary Buildings: Case Studies of Curtain Walling by Marc Saugey in Geneva", p.1404. Available at: http://www.arct.cam.ac.uk/Downloads/ichs/vol-2-1387-1408-graf.pdf [11.10.2014].

106 Cf. Catherine Courtiau (2009) – op. cit., p.306.

107 "la première a consisté en la définition de l'angle sur les deux rues avec le cinema «Le Plaza» dans le cour; la deuxieme a mis en place une continuité batie avec deux immeubles de bureaux posés sur une «galette» commerciale." in Philippe Meier – op. cit., p.34.

108 "(...), associe commerces, restaurants et un espace culturel, le cinema, à une immeuble de bureau." in

The vacuum concrete technology allowed the building to be achieved in a record time.

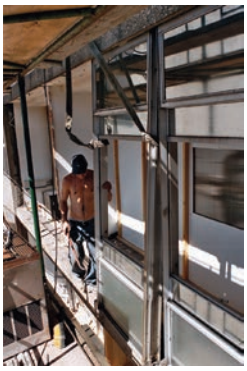
The two levels of shops, as well as the entrance to the office building are connected by ramps that follow the natural slope of the plot. Also, a covered interior street maximizes the glazing surface of the shops, at the same time it gives access to the cinema entrance. The cinema room is "covered with an aluminium frame with a span of 40 meters, a technical feat for the time in Europe"[109] developed in collaboration with the engineer Pierre Froidevaux. The cinema's section allows an interesting connection between "the foyer, the room and the gallery"[110].

The building's envelope, a prefabricated aluminium curtain-wall, enables Saugey to "continue his quest for standardization"[111], and also "evokes the Corbusean principles"[112].

Following a research work developed in 1996 by the IAUG, which included a detailed survey of the specifications of the building's original façade, the architecture office of Devanthéry & Lamunière restored them in 2004. The solution adopted was to fully replicate the original aluminium curtain-wall façade, including in the new design the insulation of window frames' elements, according to the actual comfort and energetic standards, as well as the replacement of the single glazing by a more performant one.[113]

Some years later, in 2009, the Mont-Blanc Centre was listed as a historic monument.[114]

022. *Mont-Blanc Centre*. Replica panels being installed (2004).



023. *Mont-Blanc Centre.* Panel being taken down (2004).

024. *Mont-Blanc Centre* after the rehabilitation works (n.d.).

Catherine Courtiau (2009) – op. cit., p.306.

109 "(...), couvertes d'une charpente en aluminium d'une portée de 40m, un exploit technique pour l'époque en Europe." in Idem.

110 "(...), le foyer avec la salle et la galerie, (...)" in Philippe Meier – op. cit., p.34.

111 "(...), poursuivre sa quête de la standardisation." in Idem.

112 "(...), évoques aussi les principes corbuséens." in Catherine Courtiau (2009) – op. cit., p.307.

113 Cf. Franz Graf – op. cit., pp.1405-1406.

114 Cf. Idem.

01.2.5 The *Cité du Lignon* (1963-1971; 2008-2011)

The *Cité du Lignon*, is a satellite precinct built in Geneva in the sixties, more precisely, between 1963 and 1971. Design by the architecture office of George Addor, it was "part of the Canton's strategy to tackle the population boom"[115] of this decade.

The precinct is constituted of a "free-standing block with 11 to 15 floors form[ing] a jagged [and] continuous line over one kilometre in length, defined by the perimeter and gradient of the plot"[116]. Two towers, with 26 and 30 floors and community facilities complete the development. Projected for 10 000 people and with 2700 apartments, it includes a "blend from residential forms, from subsidised rented units to condominium ownership"[117].

Besides its layout, "which, (…), broke with the conventions, (…), this pioneering project also possesses remarkable technical and constructive"[118] solutions. The tunnel formwork process was used for the first time in Switzerland for the assembly of the reinforced concrete structure, and the building's curtain-wall façade was entirely prefabricated – "consist[ing] of large format panels, one full storey high, (…), [with] a pinewood interior frame and an aluminium frame on the exterior"[119] filled with alternated opaque and glazed elements.

025. 026. *Cité du Lignon*. View of the precinct (n.d.).

027. 028. *Cité du Lignon*. View of the continuous block in detail: façade and entrance halls (n.d.).

115 Franz Graf; Giulia Marino – "Modern and green: heritage, energy, economy" (English abstract) in Franz Graf (dir.) - *La cité du LIGNON 1963-1971: étude architecturale et stratégies d'intervention*, *Patrimoine et architecture*: Cahier hors série, Gollion: Editions Infolio, 2012, p.145.

116 Idem, pp.145-146.

117 Ibidem, p.145.

118 Ibidem, p.146.

119 Ibidem.

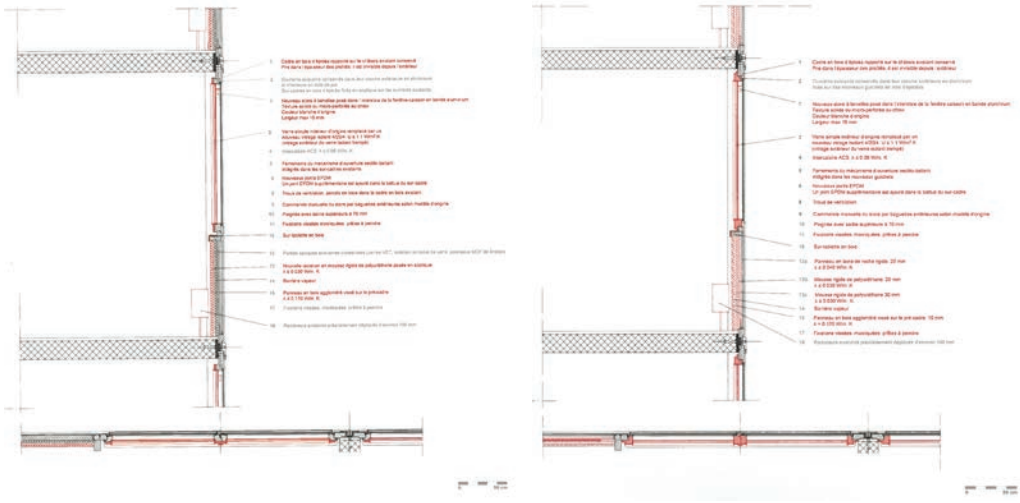
Presently “regarded as the most spectacular housing development in post-war Switzerland”[120], the *Lignon* precinct is protected by a Site Plan since 2009, which aims not only to preserve “the architectural unity of the buildings, [but also] the planning design and the landscape quality of the exterior spaces”[121].

As a consequence of both the “unauthorised replacement of [building] features such as PVC windows”[122], as well as the new requirements to reduce energy consumption, the TSAM was commissioned by the Canton of Geneva to develop “an architectural and energy study of the [*Lignon*’s] envelopes – which took place between 2008 and 2011.

Following a survey on the characteristics of the envelope constituents and the analysis of their respective thermal performances, the study identified four different options of intervention for the façades of *Lignon* – “rang[ing] from simple maintenance (option A), to replacing of the curtain walling with a replica (option D), with intermediate solutions that include repair (option B) and refurbishment (option C)”[123].

Then, an evaluation method “using multiple criteria, (…) [allowed to] compare the three variables: heritage, economy and energy”[124] and test the various solutions according to their architectural and technical impact. Although option D was immediately rejected, because of its unreasonable cost, the others were retained, and consequently a prototype of each one was developed and tested under real conditions, allowing the development of detailed specifications for each scenario.

As a result, this investigation “as well as ensuring acceptable conservation of the original façades, (…), offered a palette of possible interventions, all fully compatible with one another, from which the owners can choose according to their financial means”[125].



029. *Cité du Lignon*. Detailed drawings of the options B (repair) and C (refurbishment) for the glazed sections of the façade.

120 Ibidem, p.144.
121 Ibidem, p.147.
122 Ibidem.
123 Ibidem, p.147.
124 Ibidem, p.148.
125 Ibidem.

Additionally, the study also envisioned intervention strategies for *Lignon*'s entrance halls and the exterior corridor-balconies, which had a big impact on the building's heat balance. Apart from their insulation, the study created "on the ground-floor of a new thermal envelope – a new door that closes the stairwell, (...) – [and] allows to keep the [entrance halls'] original glazing façades, while ensuring a considerable improvement in thermal performance"[126].

In the end, according to the architects, the pilot study developed for *Lignon* allows a considerable reduction in the building's energy consumption, respecting simultaneously its original materiality – thus it "could be a valuable precedent, applicable to a broader *corpus* of similar objects"[127]. This fact stands on the sucess of this operation and its world wide recognition as a pioneering reference.

01.3 State of the Art

As it was mentioned in the beginning of this chapter, recent decades have witnessed the raising of a number of concerns regarding the protection and preservation of sets and buildings designed by the architects of the Modern Movement. Despite being a relatively recent concern, there are already plenty of published works that promote the discussion on the topic and describe examples of rehabilitation interventions in buildings of this period. They contributed, as models, to the realisation of this work, and allowed the contextualisation of the broaden theme that is the preservation of MoMo architecture.

In a more general context, the ***Docomomo journal*** presents regularly a set of contributions of various authors in the form of essays and scientific articles, always related to the theme being discussed in each edition. The journal number 44 with the title ***"Modern and Sustainable"*** (2011), edited by Ana Tostões and Ivan Blassi, was particularly important for this work. It promotes a reflection on sustainability – and the related issues of heritage, energy and the economy – a problematic recently introduced in the field.

Also edited by *Docomomo*, under the direction of Dirk van der Heuvel, ***The Challenge of change: dealing with the legacy of the Modern Movement*** (2008) compiles the interventions of the *Docomomo*'s bi-annual international conference, whose subject of discussion was the relationship between preservation and the continuous changing context of buildings.

Also from the same year, Theodore Prudon's ***Preservation of Modern Architecture*** (2008) highlights the latest advances in the field of conservation of the 20th century architecture, gathering several examples from both the United States and Europe.

The monograph ***Back from Utopia, The Challenge of the Modern Movement*** (2002), edited by Hubert-Jan Henket and Hilde Heynen, brings together 42 contributions from some of the leading professionals in the fields of architecture and architectural history. The book presents itself as a critical discussion of the values of the Modern Movement, its multiple manifestations and paradoxes.

126 Ibidem, p.119.

127 Ibidem, p.149.

Under a wide variety of forms it aims to reassess the meaning of the Modern Movement, questioning the role it can and should have today.

Susan McDonald's ***Conservation of Modern Architecture*** (2007) and ***Preserving the Post War heritage*** (2001), both examine the philosophical and practical issues in relation with the conservation of Modern buildings, highlighting some of its problems. However, the second is specifically focused in the problems and examples of the post-War period.

The book ***Modern Movement Heritage*** (1998), edited by Allen Cunningham illustrates how problems on the preservation of this heritage were being addressed at the time, through a selection of case studies.

The dissertation ***Património Moderno: do conceito à intervenção*** (2007), elaborated by Matilde Cardoso for the award of the Master's Degree in Architecture at the IST-University of Lisbon, analyses the process of intervention in Modern heritage, discussing its main theoretical problems, as well as the practical ways to implement it.

Recently published, the book ***Docomomo International 1988-2012: Key papers in Modern Architectural Heritage Conservation*** (2014), edited by Liu Kechen and Ana Tostões, assembles the most important papers of the last 25 years on the theory of heritage conservation, organized by *Docomomo*.

Regarding the Swiss context, and more specifically Geneva's case, some important works also need to be mentioned.

The study ***La cité du Lignon 1963-1971: étude architecturale et stratégie d'intervention*** (2012), was conducted by the *Laboratoire des Techniques et de la Sauvegarde de l'Architecture Moderne* at the EPFL, under the direction of Professor Franz Graf, between 2008 and 2011. Published jointly by the EPFL and the OPS of the Canton of Geneva, this investigation on the restauration of the envelope of a post-War housing building is the capital reference for the work developed in this dissertation.

Also edited by Professor Franz Graf, the works ***Understanding and Conserving Industrialised and Prefabricated Architecture*** (2012), by Yvan Delemontey, and ***Glass in the 20th century architecture: preservation and restauration*** (2011), by Francesca Albani, gather significant and interesting examples, each one on its own subject.

Additionally, the dossier ***La maison ronde: patrimoine architectural et modèle urbain*** (2003) published in the numbers 12-13 of the architecture journal *Patrimoine et architecture,* analyses the restauration intervention on this heritage listed Modern building.

To understand both the historical context of Geneva in the post-War years, concerning its architecture and urban planning, and the respective role of the architect Marc Joseph Saugey, the research ***Marc J. Saugey, spatialité, urbanisme et nouveaux programmes de l'après-guerre : la ville des années 50 et 60*** (2007) was extremely important. Coordinated by Jean Pierre Cêtre and Franz Graf, and with the inputs of Catherine Courtiau, Catherine Dumont d'Ayot and Philippe Thomé, this investigation situates the work of Saugey in the architectural and urban context of the city of Geneva in post-War

period.

The architecture guide ***Xxe, Un siècle d'architectures à Genève. Promenades*** (2009), edited by Catherine Courtiau, as well as the two volumes of the guide ***L'architecture à Genève, 1919-1975*** (1999), directed by Isabelle Charollais, Jean-Marc Lamunière and Michel Nemec, were also relevant to the understanding of the architecture and urban planning historical circumstances of the city, when the case study building of this work was constructed.

It is also important to refer the existing literature on the life and works of the architect Marc-Joseph Saugey.

The most recent publication on his life and work is the monograph ***Marc-Joseph Saugey: architecte*** (2012), developed by the architect Philippe Meier together with the team of the architecture office Meier+Associés Architectes. Based on historical and archive documents and with an introduction by Philippe Meier about the life and professional career of the architect, the book also gathers detailed descriptions of some of his major works, accompanied by technical and photographic illustrations, intending to honour one of key figures of the post-War architecture in Geneva.

Still on the same subject, it is worth mentioning the number 21 of the architecture journal ***Faces*** with the title ***"Marc J. Saugey"*** (1991), which was the first and is still one of the most complete comprehensive publications on the work of the architect Marc Joseph Saugey.

Finally, and directly related to the object of study of this work, it is essential to refer the *dossier* ***Miremont-le-Crêt (1956-1957): architectural patrimoine du XXe siècle*** (2000), number 9 of the architecture journal ***Patrimoine et architecture***, which describes in detail the project and construction of the apartment building *Miremont-Le-Crêt*.

THE POST-WAR CONTEXT IN GENEVA AND THE ARCHITECT MARC-JOSEPH SAUGEY 02

02.1. The historic context of post-War architecture and urban-planning in Geneva

During its recent history, Geneva has known several phases of economic and demographic growth, same as other Swiss and European cities. The apogee of this development occurred after the WWII, when the city extended itself to the territory of its peripheral communes and gradually acquired the form of a metropolitan area.[1] These years of impressive growth across Europe, from the end of the War until the outbreak of the Oil Crisis[2], are known as the "The Glorious Thirty"[3].

Nevertheless, understanding the architectural and urban context of this city in the post-War years requires more than the simple study of the historic circumstances and remarkable projects of this specific period. Therefore, it is essential to know the major events that punctuated its history until then – the transformations after joining the Confederation in 1814, the demolition of its fortifications since the middle of the 19th century, the choice of Geneva for the headquarters of the Society of Nations in 1919, the arriving of the new international organisations and the installation of the European headquarters of the UN in 1946[4] – and their consequences for the architecture and urban-planning of the city, as well as the notorious personalities who participated in these transformations. In fact, since the end of the WWI, the history of Geneva would be forever linked to international events. However, before the outbreak of this war, Geneva had some particular characteristics, which placed it aside from the international architectural and urban developments.

For a long time, Geneva was away from the cultural movements being debated, mainly, in Germany, the Netherlands, the USSR and Italy, for both linguistic and political reasons. And, apart from some exceptions, as Maurice Braillard (1879-1965) and the architects of the GANG[5], who were interested in the German operations, the "focus of Geneva remained Paris and France"[6].

Nonetheless, the 18th and 19th centuries, testified and exception to this disinterest in the architectural culture, with some aristocrats hiring foreign architects to design their residences, in the city or in the countryside. However, this interest in culture seemed to have disappeared in the beginning of the following century, where a so-called more «traditionalist» architecture or a «modernist» style were chosen according to each situation, both by the State and private entrepreneurs. The proof of this general lack of interest in culture is the fact "Geneva has never experienced the patronage. The absence of major private collections and the poverty of public collections are sufficient to prove it"[7].

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1 Cf. Laurent Moutinot – "Préface" in Isabelle Charollais et al. (1999) – op. cit., vol.1, p.9.

2 Also known as the 1970s Oil Crisis, lasted from 1973 to 1980.

3 *"Les trente glorieuses"*, designation assigned by Jean Fourastié to the post-War boom, according to Jean-Marc Lamunière - "Modernités urbanistiques et architecturales genevoises" in Isabelle Charollais et al. (1999) – op. cit., vol.1, p.59.

4 Cf. Catherine Courtiau - "Le contexte historique de la Genène international de l'après guerre" in Catherine Courtiau et al. - *Marc J. Saugey, spacialité, urbanisme et nouveaux programmes de l'après-guerrre: la ville des années 50 et 60*, Genève: IAUG, 2007, p.18.

5 *Groupe pour l'architecture nouvelle à Genève* (1931-1934).

6 "(...), le centre d'intérêt de Genève reste Paris et la France." in Jean-Marc Lamunière (1999) – op. cit., p.47.

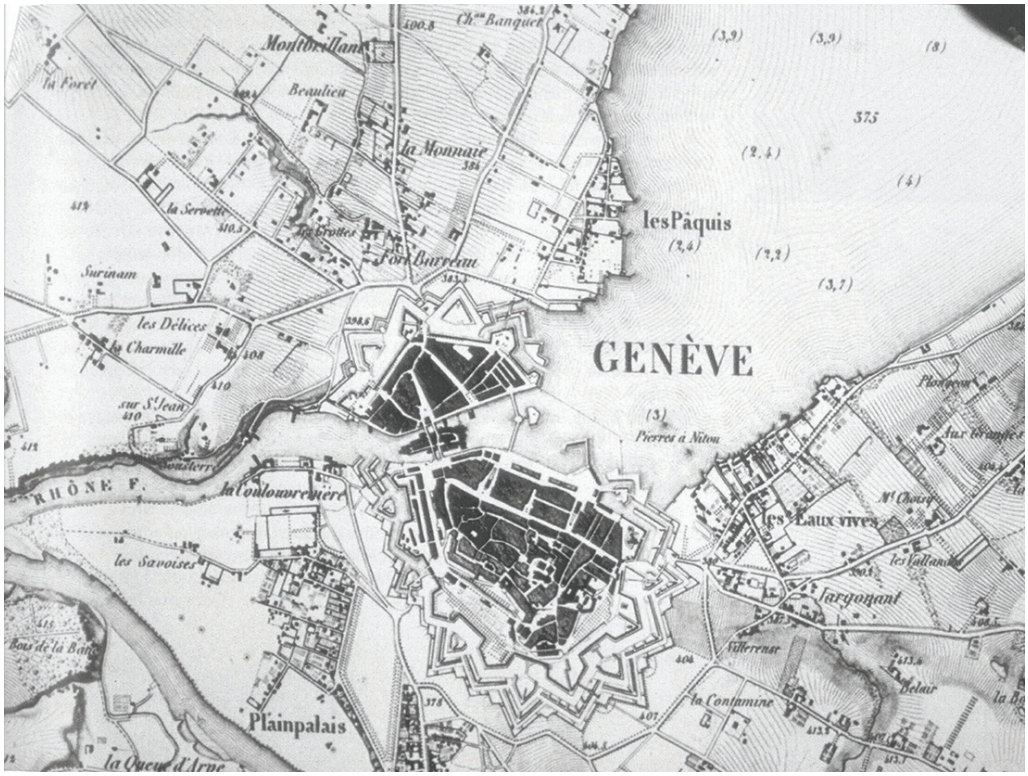
7 "Genève n'a jamais connu le mécénat; l'absence de grandes collections privées et l'indigence des collections publiques suffisent à le prouver." in André Corboz – "Le moderne à Genève jusqu'en 1945" in André Corboz et al. – *Guide de l'architecture*

This situation would only change in the post-War, with the – mediatisation of architecture.[8]

In addition, the training of the Geneva architects was different from both the German-Swiss and the neighbour countries, since it was not academic, due to the fact the School of Architecture was only lately attached to the University of Geneva. Also, most architects and planners were chosen according to their political affiliation and their contacts with the political party in the power (Radical, Christian Social, Liberal, Socialist)[9], as is understandable by going through the history of Geneva.

In order to facilitate the comprehension of the post-War context of this city, where the architect Marc-Joseph Saugey (1908-1971) appeared, a brief contextualisation of the most important episodes of the history of Geneva, since the middle of the 19th century to the end of the WWII, is subsequently presented.

Curiously, both the post-War years and the same years of the preceding century present many similarities: "important political, economic and financial changes, that announce a certain construction euphoria and an enthusiasm for new technologies"[10].



030. Topographic map of the Canton of Geneva. Guillaume Henri Dufour (1837-1838).

moderne à Genève, Lausanne: Editions Payot, 1969, p.4.

8 Cf. Jean-Marc Lamunière (1999) – op. cit., pp.45-46.

9 Idem, p.46.

10 "(…), d'importants changements politiques, économiques et financiers annoncent une certaine euphorie constructive, un enthosiasme pour de nouvelles technologies, (...)" in Catherine Courtiau (2007) – op. cit., p.20.

02.1.1 From the 19th century to the outbreak of the WWI: the first extension works

02.1.1.1 The demolition of the fortifications and the expansion of the city

Under the old conservative regime, Geneva was still surrounded by fortifications, which although no longer necessary, enclosed the city in itself, restraining its expansion. Almost all of the city constructions were erected alongside its defences and, only "the launch of the first steamboat, in 1923, changed the perception of the city"[11], which for the first time turned itself towards the lake.

Docks were built along the riverbanks of the *Rhône*, and along them a vast urban operation, including the construction of housing and commercial buildings. The *Hôtel des Berges* stands as the symbol of this change, once its "façade was [the first] oriented towards the lake and the *Rhône*"[12].

The Radical revolution of 1846 put an end to the former Conservative regime, and led the new government to submit a new Constitution to popular suffrage, containing a law on the demolition of the fortifications. This process, which started in 1849 and lasted until 1876, allowed the development of new dwellings and districts, in areas relatively free of constructions and little densified, as well as "new plots to construct, in part, [in the areas] gained to the water"[13].

Apart from the great residential complexes built in the periphery, urban development was structured mainly from the old city centre, which continued to house most shops, offices and administrative buildings.

Several real estate societies and consortiums were created and "architects (…) should engage themselves politically, integrated in official or private institutions to participate in the construction of the city"[14]. The creation of great hotels was the only "escap[ing] the control of the real estate societies or the State, [being developed by] hoteliers' families"[15].

Despite its banal architecture, remarkable neighbourhoods were built in the areas close to the city centre. Until the end of the century, all this new buildings had a neoclassical style, in part due to the nature of the dominant material, the molasses, which tolerates badly being modelled[16], but "especially because of the [existent] puritanism"[17], which prevented, for a long time, innovative works and the development of the modern movements of the time. As for the exterior neighbourhoods, "they grew into anarchy"[18].

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11 "Le lancement en 1923 du premier bateau à vapeur, (...), modifia la perception de la ville, (...)" in Idem, p.21.

12 "(...), la façade, (...), s'orienter vers le lac et le Rhône, (...)" in Ibidem.

13 "(...), des nouveaux terrains à construire, en partie gagnés sur l'eau." in Ibidem, p.23.

14 "Les architectes, (...), devraient s'engager politiquement, s'intégrer aux institutions officielles ou privées, afin de participer à la destinée constructive de la ville." in Ibidem, p.24.

15 "(...), échappant au contrôle des sociétés immobilières et de l'Etat, (...), de familles d'hôteliers, (...)" in Ibidem.

16 Cf. André Corboz – op. cit., p.4.

17 "(...), surtout par un puritanisme, (...)" in Idem.

18 "(...), ils se développent dans l'anarchie." in Ibidem, p.3.

031. Expansion plan for the city of Geneva. Léopold Blotnitzki (1855-1858).

02.1.1.2 The first railway station

Besides its strategic location for the development of the main communication lines of Europe, "the advent of the railways arrived late"[19] in Geneva, and by the French company *Paris-Lyon-Méditerrané*, which inaugurated the first railway station in 1858.

Its location in *Cornavin*, had a tremendous influence in "the expansion of the city towards West and North and the successive development of new neighbourhoods"[20], in the right-side shore of the lake. Destructed by a fire, it was bought by the Confederation in 1913.

032. View of Geneva and its surroundings. Alfred Guesdon (before 1859).

033. The National Exhibition of 1896. Christoph von Ziegler.

19 "(…), l'avènement du chemin de fer s'y concrétisa tardivement." in Catherine Courtiau (2007) – op. cit., p.24.

20 "(...), l'extension de la ville vers l'ouest et le nord et la création successive de nouveaux quartiers, (...)" in Idem.

02.1.1.3 The National Exhibition of 1896 and the works of the *Rhône*

Since the middle of the 19th century, the works on the riverbanks of the *Rhône*, caused important changes in the normal flow of lake, which resulted in several complaints from lakeside residents, who led a successful lawsuit against Geneva. Between 1883 and 1892, the shores of the *Rhône* were subject to deep construction works to correct the existing problems. Focused on the right-side shore, particularly, in the district of *Saint-Gervais*, they had as an outcome the construction of numerous docs, bridges and footbridges, changing profoundly the image of the Geneva.

At the time, "the international political tendencies, that claimed the rights of the modern proletariat and questioned the traditional bourgeois values (…) were counterbalanced by a patriotic and conservative ideal"[21]. It was in this context that the National Exhibition of 1896 took place in Geneva, "reflecting (…) the local search for a national cohesion"[22] and a "Swiss style – vaguely medieval syntax expressed using rustic means (vast roofs, extensive use of wood)"[23] – target of several critics, which lasted until the Exhibition of 1914.

Widening works, planned by architect Joseph Marschall (1865-1924), were held in the docks of both shores of the lake, the *Pâquis* jetty was built, as well as the *jet d'eau*, "which introduced a contrasting vertical dimension to the landscape scale"[24].

02.1.1.4 The law of 1900, the development of the tramway network and the first parks

In 1896 the opening of the hydro-electric plant of *Chèvres*, allowed "the electrification of the city illuminations and the tramway network"[25]. This network was, at the time, the most developed in Switzerland, however, although its growth was held under a preferential axis, it did not have a global plan.

The demographic growth and the enlargement of the city limits, led the State Council to launch, in 1896, a competition for the first expansion plan of the communications network, in order to better regulate the development of the city and its management. This competition, which resulted in "the first project for the crossing of the lake, (…), promoting the enlargement of the jetties (…) destined to the establishment of a ferry-boat service"[26], along with the creation of the *Bureau de la salubrité* in 1884, would result in the law of 1900.

This law, approved in order to "execute the principles of public hygiene and aesthetic"[27] and control

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21 "Ces tendances politiques internationales, qui revendiquaient des droits au prolétariat moderne et mettaient en question les traditionnelles valeurs bourgeoises, (...), furent contrebalancées par un idéal patriotique et conservateur." in Ibidem, p.28.

22 "(...), reflétait, (...), la recherche locale d'une cohésion nationale." in Ibidem, p.30.

23 "(...), le «style suisse», (...), une syntaxe vaguement médiévale exprimée à l'aide des moyens rustiques (toits immenses, large usage du bois), (...)" in André Corboz – op. cit., pp.5-6.

24 "(...), la verticale constrastante introduit une dimension à l'échelle du paysage." in Idem., p.5.

25 "(…), l'électrification des illuminations de la ville, du réseau des tramways, (...)" in Catherine Courtiau (2007) – op. cit., p.30.

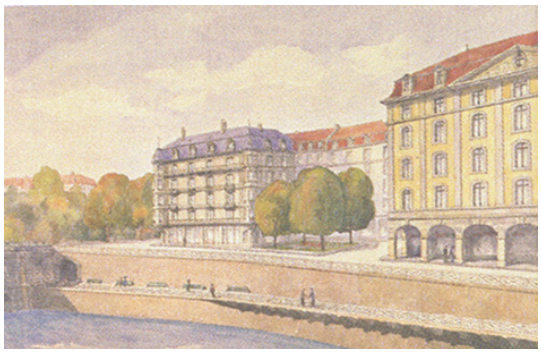
26 "Un premier projet de traversée de la rade, (...), prévu en élargissant les jetées, (...), destinés à un service de ferry-boat" in Idem.

27 "(...), exécuter les principes de l'hygiène publique et esthétique." in Ibidem, p.32.

the real estate market, did not succeed to correct the chaotic growth of the agglomeration. Several partial plans, "with no coordination, promoted the creation of peripheral neighbourhoods, where tenants lived aside with warehouses and vacant lots"[28].

034. Competition for an expansion plan to the city of Geneva. «*Après les ténèbres la lumière*», 3rd prize, Frédéric de Morsier, Ami Golay, Charles Barde (1896).

In addition to this hygienist preoccupation, the Doctor Antoine Baumgartner (1808-1895), proposed in 1873 the "demolition of housing blocks to create gardens and surround the city with parks and promenades"[29]. However, all the major parks of Geneva were, in the end, created outside the old fortifications of the city, "thanks to important legacies granted to it"[30].



035. Project for the riverbanks of the *Rhône.* Anonymous (1911-1912).

036. Geneva's tram network in 1903.

28 "(...), sans coordination, favourisent la création de quartiers périphériques désordonnés, où les locatifs élevés voisinent avec des hangars et des terrains vagues." in André Corboz – op. cit., p.8.

29 "(...), la demolition d'îlots de maisons pour y créer des jardins et d'entourer la ville de parcs et des promenades, (...)" in Catherine Courtiau (2007) – op. cit., p.27.

30 "(...), grâce à d'importants legs accordés à la ville, (...)" in Idem.

02.1.2 Between the two WW: the Society of Nations and the advent of the international city

02.1.2.1 The SoN and the competition for the Palace of Nations

During WWI, Geneva was "the refuge city for the International Committee of the Red Cross"[31]. Therefore, when the war ended, Geneva was chosen for the headquarters of the Society of Nations, "the symbol of peace"[32]. This decision was recorded in the Treaty of Versailles, signed in 1919, and ratified by popular vote of the Confederation in 1920. From that moment, it was urgent to create infrastructures to accommodate the international delegations[33].

Provisory adaptations were made: the *Hôtel Nacional* was "transformed by the architects Marc (1857-1940) and Jean Camoletti (1891-1972) to receive the Secretariat"[34] and Georges Epitaux (1873-1957) projected the International Labour Office, inaugurated in 1926, which was the first building exclusively designed for the international organisations. In addition, since 1920, several "hotels were adapted to the new needs of an international"[35] city.

After 1922, numerous studies were held regarding the choice of the location for the future Palace of the SoN, all in the right-side shore of the lake: first near its shores and then in the hills of the *Petit* and *Grand-Saconnex*[36]. They culminated, in 1926, with the launch of an international competition for construction of the Palace of Nations, "trigging a real dispute between the Academicians and the Moderns"[37], "an event that (…) marked the appearance of rationalism and functionalism in the reality of Geneva"[38], evident in the projects of Hannes Meyer (1889-1954) and Le Corbusier (1887-1965).

037. Le Corbusier and Pierre Jeanneret, diorama of the *Cité mondiale* with the ziggurat (*musée mondiale*) at the centre (1929).

038. Palace of Nations, photomontage model. Henri Paul Nénot, Julien Flegenheimer, Carlo Broggi, Camille Lefèvre and Joseph Vago (1929-1937).

31 "(...), ville de refuge,(...), du Comité international de la Croix-Rouge, (...)" in Ibidem, p.35.

32 "(...), symbole de la paix, (...)" in Jean-Marc Lamunière (1999) – op. cit., p.47.

33 Cf. Catherine Courtiau (2007) - op. cit., p.35.

34 "(...), transformé par les architectes Marc et Jean Camoletti pour recevoir le Secrétariat, (...)" in Idem.

35 "(...), les hôtels, (...), furent adaptés aux nouvelles données de la (Genève) internationale, (...)" in Ibidem.

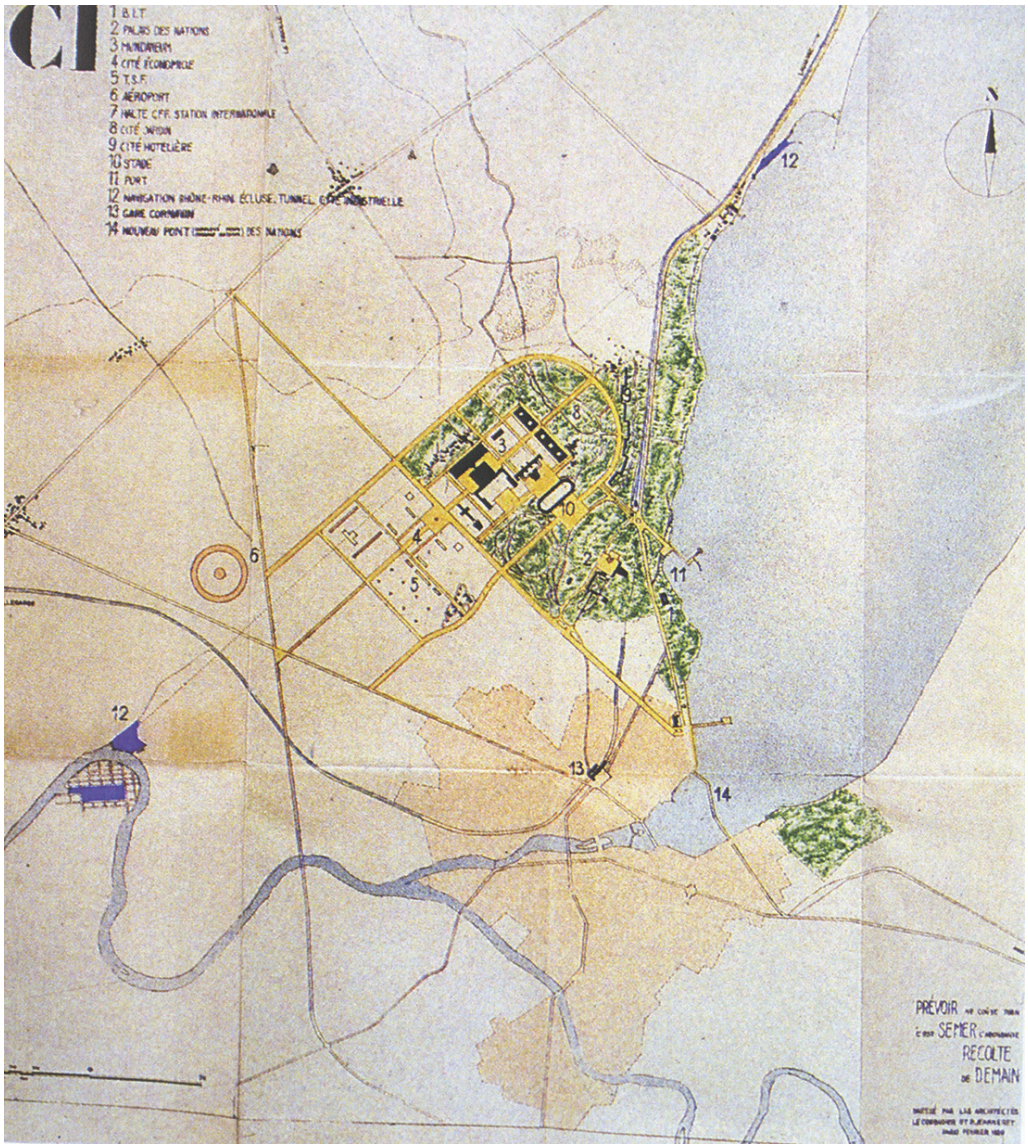
36 Cf. Ibidem.

37 "(...), déclenchant un véritable, (...), dispute entre les Académiques et les Modernes, (...)" in Ibidem, p.40. Projects published in the architectural journal *Architecture d'aujourd'hui*.

38 "(...), un événement qui, (...), marque l'insertion du rationalisme et du fonctionnalisme dans la réalité genevoise." in André Corboz – op. cit., p.9.

Nonetheless, the Assembly of the SoN decided to nominate a committee of five diplomats, in 1927, who chose Henri Paul Nénot (Paris, 1853-1934) and Julien Flegenheimer (Geneva, 1880-1938) to design the Palace of the SoN, which was built between 1929 and 1937, in a neoclassical style. They had also the support of the artists Carlo Broggi (Rome, 1881-1968), Camille Lefèvre (Paris, 1876-1946) and Joseph Vago (Budapest)[39].

Since the decision to establish in Geneva the SoN, the Belgian jurist Paul Otlet (1868-1944), proposed to develop there his project of a *Cité mondial*. After commissioning the architect Jean-Jacques Dériaz to develop an urban study for its implantation, Le Corbusier and Pierre Jeanneret (1896-1967) were appointed to present the project of their *Mundaneum*. However, these ambitious projects were never built[40].



039. Le Corbusier and Pierre Jeanneret, project of the *Cité mondiale* (1929).

39 Cf. Catherine Courtiau (2007) – op. cit., p.42.

40 Cf. Idem, pp.36 and 39.

02.1.2.2 The new infrastructures for international connection: the railway and the airport

As an answer to the new means of communication and the need of fast connection with the world, the first airfield of Geneva opened in *Cointrin* in 1922. In 1937, it received its first concrete track and the official designation of "«Airport of Geneva-*Cointrin*»"[41].

In 1925, a competition was organised for the renovation of the railway station of *Cornavin*. Although Mart Stam's (1899-1986) project was "one of the first important manifestations of Modern architecture"[42], the architect commissioned was Julien Flegenheimer, who proposed a more "traditionalist" design.

02.1.2.3 The GANG

Inspired by these Modern projects, but especially by Le Corbusier, "many architects, including Saugey, met to create, in January 1931, the *Groupe pour l'architecture nouvelle à Genève*, the GANG"[43]. Their purpose was to spread the ideas of the *esprit nouveau* and the new architecture with its "desire of truth and simplicity"[44].

They were responsible for the organisation of several architecture and urban-planning exhibitions in Geneva, as well as for the events linked to the CIAM, being, at that time, "the antenna of the executive committee of the CIAM, the CIRPAC"[45]. Therefore, it was the GANG that prepared "the statistic plans of Geneva for the 4th congress of the CIAM, in Athens, in 1933, about «The functional city»"[46].

Nonetheless, the GANG, failed to extend its action according to the principles enounced, and disappeared in 1934.

02.1.2.4 "Between modernism and modernity"[47]

At the same time, Le Corbusier was building *La Clarté* (1931-1932) or the *Maison de verre* as it is known in Geneva, which was "the first rental steel structure building of great dimensions, fully standardized, and also the first building where the duplexes appear[ed]"[48]. He had the support of

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41 "«Aéroport de Genève-Cointrin»" in Ibidem, p.40.

42 "(...), l'une des premières manifestations importantes de l'architecture moderne, (...)" in Jean-Marc Lamunière (1999) – op. cit., p.49.

43 "(...), plusieurs architectes, dont Saugey, se réunirent dès janvier 1931, pour former le Groupe pour l'architecture nouvelle à Genève, le GANG, (...)" in Catherine Courtiau (2007) – op. cit., p.45.

44 "(...), désir de vérité et de simplicité." in Idem.

45 "(...), l'antenne du comité exécutif des CIAM, le CIRPAC, (...)" in Ibidem, p.46.

46 "(...), les plans statistiques de Genève pour le 4e congrès des CIAM à Athènes en 1933 sur «La ville fonctionnelle»." in Ibidem, p.48.

47 "Entre «modernisme» et modernité" in Jean-Marc Lamunière (1999) – op. cit., p.55.

48 "(...), le premier locatif à ossature d'acier de grande dimension, entièrement standardisé, mais aussi le premier bâtiment où apparaît le duplex." in André Corboz – op. cit., p.11.

the engineer Robert Maillart (1872-1940), who also built in Geneva the bridges of *Vessy* (1936) and *Lancy sur l'Aire* (1954).

Delays in finishing the construction of the Palace of Nations for the Conference on Disarmament, schedule for 1932, led to the construction of the Pavilion of Disarmament (1932), by Adolphe Guyonnet. The removable metal pavilion was the first manifesto of the *Bauhaus* language in Geneva.[49]

In this same period, the four young architects of the *Atelier d'architectes*[50] distinguished themselves by the construction of the housing buildings *3 avenue Krieg* (1936) and *4-6 quai des Arénières* (1933), the extension of the school of *Les Crêts* (1939), the *28 quai Gustave Ador* and the villas of Francis Quétant (*1-3 chemin de Roches*, 1935-37), Arnold Hoechel (*44 route de Saint-Georges*, 1936) and Henri Minner (*102 route de Chêne*, 1932). However, "if these works were subsequently more recognized than [the ones of] other [architects], it was in large part due to the fact that some partners (…) have extended, after the war, their research for a modernist expression: more eclectic in Saugey and more rational in Schwertz"[51].

Moreover, the notable works from Louis Vincent and Jean-Jacques Honegger (1903-1985), include the housing building *5-7 avenue Weber* (1930), the villa *«Les Ailes»* (1932-1935) and the remarkable housing complex of *Frontenex* (1933-1934).

Nevertheless, "these local pioneers did not hesitate to build, as well, perfectly traditional villas"[52].

02.1.2.5 The construction of new dwellings

Besides the international impulsion the SoN gave to the development of the city, in the years that followed the WWI, "Geneva lived a period of demographic, economic and politic difficulties"[53]. This led to the fall of the Radical party, in 1918, replaced by the Democrats, "who were unable to change the situation"[54].

Nevertheless, with the "massive arrival of international officials"[55] it was also necessary to develop new dwellings. Therefore, in this same year, the *Société cooperative d'habitation* was created under the impulsion of Charles Burklin (syndicalist) and Camille Martin (urban-planner), as well as the *Fondation des logements économiques* by the State Council. These organisms were responsible for great housing developments as the garden-city of *Aïre* (Arnold Hoechel (1889-1974), 1920-1927),

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49 Cf. Idem.

50 Louis Vincent (1893-1951), René Schertz (*1908), Henri Lesemann (1909-1993) and Marc-Joseph Saugey.

51 "Si ces oeuvres, (...), ont été davantage reconnues par la suite que d'autres, elles doivent en grand partie au fait que certains des associés, (...), ont prolongé, après la Seconde Guerre mondiale, la recherche d'une expression de type moderniste: plus éclectique chez (Marc-Joseph) Saugey, plus rationaliste chez (René) Schwertz." in Jean-Marc Lamunière (1999) – op. cit., pp.57-58.

52 "(…), ces pionniers locaux n'hésitaient pas à construire, eux aussi, des villas parfaitement traditionnelles." in André Corboz- op. cit., p.14.

53 "Genève vit des periods difficiles sur les plans démographique, économique et politique." in Jean-Marc Lamunière - op. cit., p.47.

54 "(…), ne parvient pas à redresser la situation, (...)" in Idem, p.48.

55 "(…), l'arrivée massive de fonctionnaires internationaux, (...)" in Catherine Courtiau (2007) - op. cit., p.44.

the complex of *Monillebeau* in the *Petit-Saconnex* (Maurice Braillard and Camille Martin, 1927), the complex of *Montchoisy* (Maurice Braillard and Louis Vial), the *Cité-Vieusseux* (Camille Martin, 1929, Maurice Braillard, 1930-1931) and the complex of *Frontenex* (Louis Vincent and Jean-Jacques Honegger, 1933-1934)[56].

Though, the creation of these new housing districts in the periphery was being carried without the call for a broaden urban planning. As a result, Camille Martin and Maurice Braillard, two great protagonists of the urban-planning in Geneva, appealed to "the study of measures for assuring a rational development of the city, (…), to reform the extension plan of 1900, in order to include all the elements of urban life, fixing the rules for the new constructions, designing a plan for the circulation network and working for the annexation of the suburban communes"[57], as well as reserving spaces for green areas. They redacted in 1927 an appeal *«Pour la Grande Genève»*, gathering immediately support from several institutions.

Despite a period of gradual economic improvement, the Great Depression of 1929, brought again "the financial difficulties and the political stagnation"[58], which lasted until 1937. Between 1933 and 1936, the Socialist Party had the majority in the State Council, and the architect and urban-planner Maurice Braillard was nominated head of the *Département de travaux publiques* (DTP)

02.1.2.6 The new urban-planning instruments and the role of Maurice Braillard

Although Geneva was far from "the architectural avant-garde, and (…), the modern cultural flows of the time, it played a pioneering role concerning zoning plans and territory legislation"[59].

The city international status, and its consequent need of expansion, demanded new urban-planning instruments and laws, in order to promote its balanced development. In 1920, a legal unit for the protection of monuments and sites was created, to protect the city heritage in its process of growth. Prepared by Camille Martin, the law of the extension, concerning the communication lines and the development of new districts, as well as the cantonal zoning plan was approved in 1929. This law "divided the Canton in five zones, introducing specific construction rules"[60] for each one, using a system of colours to assign to each part of the territory specific activities and densities. Those were attributed according to a regressive system of densities, "from the second zone, strictly urban to the expansion zones"[61] less densified. It delimited, as well, an industrial area and a protection zone for

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56 Cf. Idem, pp.44-45.

57 "(…), d'étudier les mesures à prendre pour assurer un développement rationnel de la ville, de réformer, (...), plan d'extension de 1900 à tous les éléments de la vie urbaine, de fixer les règles de la construction nouvelle, de dresser le plan des grandes circulation et d'oeuvrer pour l'annexion des communes suburbaines, (...)" in Ibidem., p.44.

58 "(...), les difficultés financières et, (...), le marasme politique, (...)" in Jean-Marc Lamunière (1999) – op. cit., p.48.

59 "(...), l'avant-garde architecturale et, (...), les flux culturels modernes de l'époque, elle joue un rôle précurseur en ce qui concerne les plans de zones et la législation relative au territoire." in Idem, p.50.

60 "(…) division du canton en cinq zones distinctes, introduisant des règles de construction spécifiques." in Catherine Courtiau (2007) – op. cit., p.48.

61 "À partir de la deuxième zone, strictement urbaine, jusqu'à des zones d'expansion, (...)" in Jean-Marc Lamunière (1999) – op. cit., p.50.

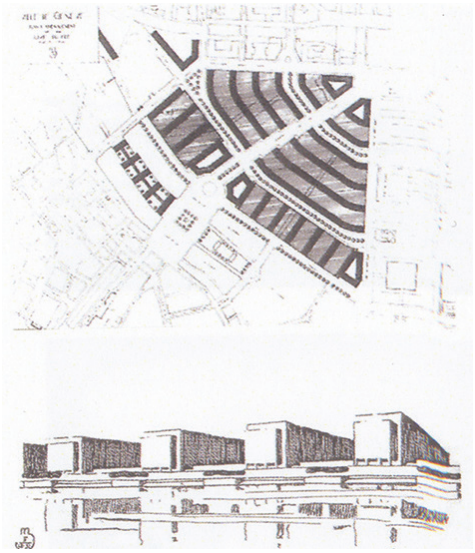
the old town.

Inspired by the CIAM, "the separation of activities, their location and density, (…), took a legal form in Geneva"[62]. However, this law was subject to some criticism, once it defended the disappearance of a "mixture of business, labour and housing"[63].

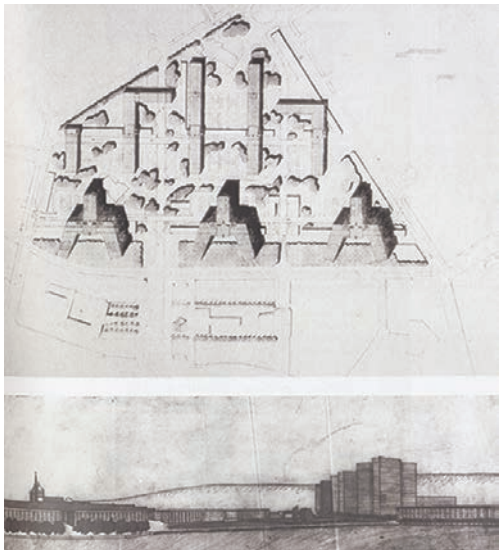
In 1931, the city of Geneva integrated in its perimeter the former municipalities of the *Eaux-Vives*, *Plainpalais* and *Petit-Saconnex*. Numerous neighbourhoods of the old suburban communes were being object of important real estate operations, as the Square *Montchoisy* (Maurice Braillard, 1930-31, Jean-Jacques et Pierre Honegger, 1933-35) and the *Bouchet* in the *Petit-Saconnex* (Arnold Hoechel, 1934-1936).

At the same time, the city-centre was also under extensive interventions, especially the district of *Saint-Gervais*. This part of the city, in the right-side shore of the *Rhône*, "found itself quickly surrounded by new buildings, constructed on land thereby released and transformed by the demolition/rebuilding of many houses"[64]. To this impressive development contributed the proximity of the railway station and the airport.

Maurice Braillard gathered, in 1930, a commission for studying the development of the right-side shore of the lake. The following year, he resigned from this group presenting to the DTP a new plan of his own. The old commission also presented a project, in this same year, as well as Le Corbusier. Almost all this projects, including Braillard's second project and Le Corbusier's, "provided [for the district of Saint-Gervais] parallel blocks implanted perpendicular to the river"[65].



040. Maurice Braillard, 2nd version of the plan for the right-side bank (1931).



041. Le Corbusier and Pierre Jeanneret, first project for the right-side bank (1932).

62 "(...), la division des activités, leur localisation et la densité, (...), prennent une forme légale à Genève." in Idem.

63 "(...), mélange des activités commerciales, du travail et du logement, (...)" in Ibidem.

64 "(…), se trouva très vite entourée de nouvelles constructions erigées sur ces terrains ainsi libérés et transformée par la démolition/reconstruction de nombreuses maisons." in Catherine Courtiau (2007) – op. cit., p.49.

65 "(…), prévoyait, (…), des barres implantées perpendiculairement au Rhône, (...)" in Idem, p.50.

Despite, Braillard's second project being adopted by the Municipal Council and the State Council, in 1933[66], due to financial difficulties, the plan for *Saint-Gervais* was revoked in 1941[67].

042. Maurice Braillard, master plan for Geneva (1935).

66 Cf. Ibidem.

67 Cf. Ibidem.

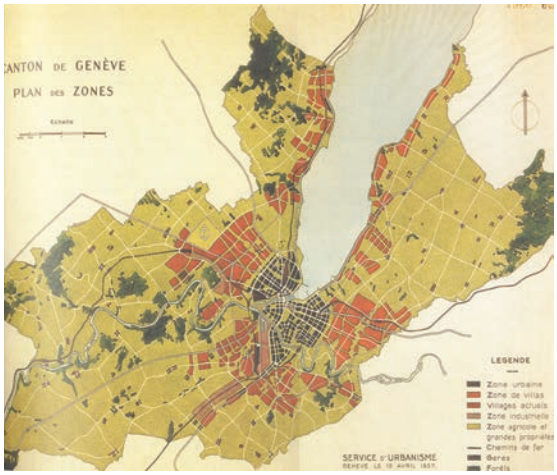
Nevertheless, the development plan for *Saint-Gervais* remained a continuous preoccupation for Braillard. Thus, in 1935, he developed a master plan for a city of 300.000 inhabitants. This plan considered "the demolition and reconstruction of almost the entire city, within a desire of a rational development"[68].

He developed "a truly hygienist urban morphology, replacing the perimeter blocks [by parallel blocks, in a plan where] the distances between buildings were large"[69] and green areas were placed in-between. The parallel blocks kept the perpendicular orientation towards the river, as in the plan of 1933, as well as the location of an industrial zone in *La Praille*, as indicated in the plan of 1929.

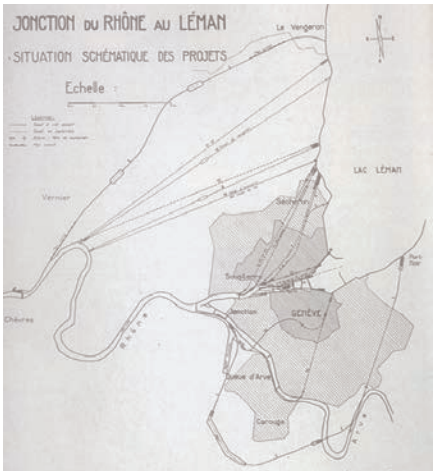
His master plan was the target of several and harsh critics and in the end of his legislature in the DTP he wrote a report explaining the plan had only an indicative character.

Some years later, in 1937, the engineer Albert Bodmer, director of the *Service Cantonal d'urbanisme*, developed a new zoning plan (*Plan de zones de 1937*), inspired on both, Braillard's plan of 1935 and the extension plan of 1929. Approved in 1940 it intended for "the development of the urban periphery, the extension to a regional scale, the improvement of the communication network, the delimitations of areas for industrial development and the revision of the zoning plan of the law of 1929"[70].

The plans of 1935 and 1937 had as consequences "the transformation of the major road axes, the enlargement of the airport, the development of the residential neighbourhoods between the Palace of Nations and the railway station of *Cornavin*, (…) [and] the first phase of reconstruction of the Cantonal hospital"[71]. Nevertheless, all these prospected works took a long time to be executed.



043. Zoning plan of Geneva, *service d'urbanisme* (1937).



044. The different projects for connecting the *Rhône* to the *Léman* (1943).

68 "(…), la démolition et la reconstruction quasi entière de la ville dans une volonté de «développement rationnel»." in Ibidem, p.52.

69 "(…), une veritable morphologie urbaine hygiéniste et efface l'îlot, (...), les distances entre les bâtiments sont larges, (...)" in Jean-Marc Lamunière (1999) – op. cit., p.54.

70 "(…), le développement de la périphérie urbaine, l'extension à l'échelle régionale, l'amélioration des voies des grandes communications, le délimitation de quartiers réservés au développement industriel et la révision du plan de zones de la loi de 1929." in Catherine Courtiau (2007) – op. cit., p.54.

71 "(...), la transformation des grands axes routiers, l'agrandissement de l'aéroport et l'aménagement de quartiers résidentiels entre le palais de la SdN et la gare de Cornavin, (...), la première étape de la reconstruction de l'Hôpital cantonal, (...)" in Idem, p.54.

During WWII, and also in the context of expansion of the city, a competition "was launch (…) by the *Association Suisse pour la navigation du Rhône au Rhin*"[72], for projects regarding the navigation between Geneva and Lyon and for constructing a canal connecting Geneva and Basel. Nonetheless, with the escalade of the war, these ideas were never developed.

02.1.3 The post-War: the UN, the new housing developments and the great urban plans

02.1.3.1 The UN, the return of international organisations and new infrastructures

With the outbreak of the Second World War, the Society of Nations and the International Labour Organisation ceased their activities in June 1940. After the War, on October 24th 1945, 51 member states signed the Charter of Nations, marking the creation of the United Nations Organisation. The former SoN was dissolved in 1946, its properties were automatically transferred to the UN and the old Palace of Nations became its official European headquarters.

Therefore, since 1945 several international organisations established themselves in Geneva, followed by "intergovernmental organisations, non-governmental organisations, [and] the World Council of Churches"[73]. Middle East and African banks were transferred to Geneva, due to the Suez crisis of 1956 and the Algerian war, and since 1958 several American companies established their European headquarters in the city[74].

Geneva knew a significant development, being one of the first European cities to benefit from an economic recovery. The arrival of Confederates, as well as international delegates and business travellers, resulted in a "considerable demographic growth, particularly in the urban periphery"[75]. Once again, it was confronted, with "the need of an urban restructuration (…) and the creation of new dwellings, services and facilities"[76].

Accordingly, a competition was launched for the design of the International Airport of Geneva-*Cointrin*. A more traditionalist project, from Camoletti and Ellenberger (1913-1988), was chosen instead of Honegger and Quétant's vision of a "modernist rationality"[77]. Inaugurated in 1949, the extension of the airport imposed as well "the signature of a convention, promoting an exchange of 42 hectares [between France and Switzerland] to allow the elongation of the track"[78].

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72 "(...), fut lancé, (...), par l'Association suisse pour la navigation du Rhône au Rhin." in Ibidem, p.57.

73 "(...), organisations intergouvernementales, (...), organisations non-gouvernementales, le Centre oecuménique des Eglises, ...)" in Ibidem, p.59.

74 Cf. André Corboz - "Développement urbain et architecture à Genève depuis 1945" in André Corboz et. al. - *Guide de l'architecture moderne à Genève*, Lausanne: Editions Payot, 1969, p.19.

75 "(…), un accroissement démographique considérable, en particulier dans la périphérie urbaine." in Catherine Courtiau (2007) – op. cit., p.59.

76 "(…), la nécessité d'une restructuration urbaine, (...), de la création de nouveaux logements, services et équipements." in Idem, p.60.

77 "(…), rationalité moderniste, (...)" in Jean-Marc Lamunière (1999) – op. cit., p.60.

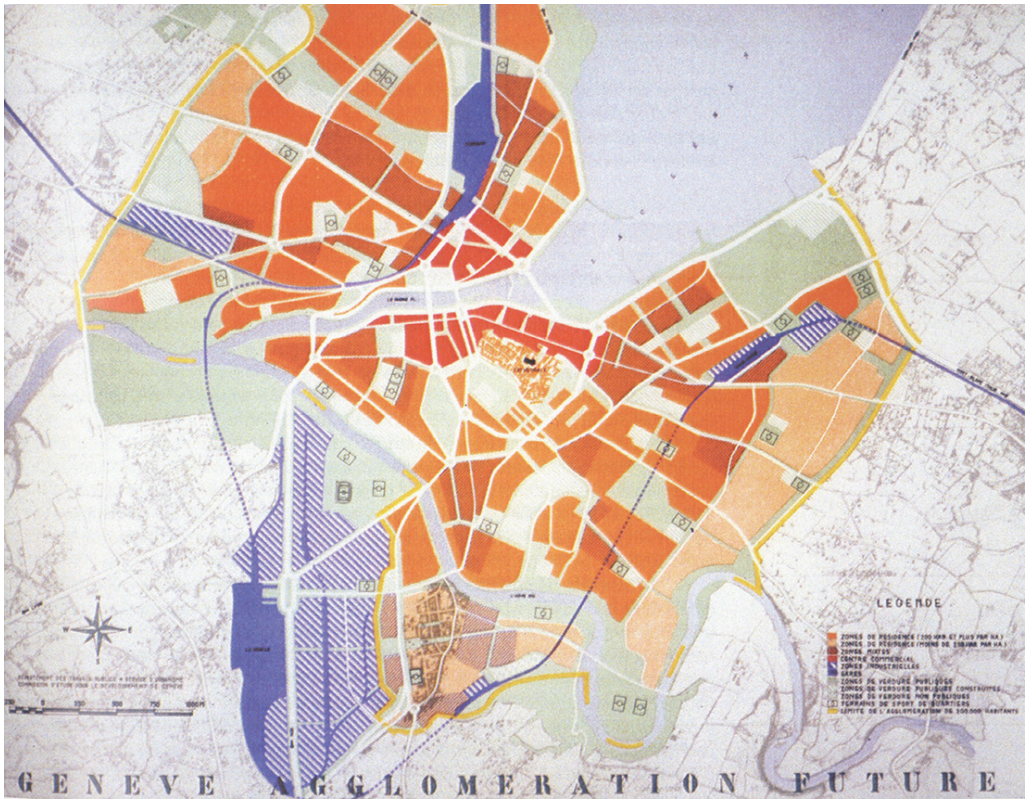
78 "(…), la signature d'une convention prévoyant un échange de territoires de 42 ha permettant l'allongement de la piste." in

In 1952, the creation of the European Organisation for Nuclear Research (CERN) also benefited from an exceptional agreement with France, allowing to "straddle the border to acquire the 80 hectares needed"[79].

The housing crisis rushed the extension of the urban centre "with the densification of the zones of villages and agricultural land"[80]. The city needed once more to revise its management instruments, however the absence of projects including the ensemble of the urban area "compromised the balance and the harmony of the city"[81], testifying the lack of coherence in its overall planning.

02.1.3.2 The new ideas of the *Groupe des cinq* and the report of 1948

In 1945, Louis Casaï (1888-1955), the director of the *Département de travaux publiques* of the Canton of Geneva, nominated a commission of five architects, including Jean-M. Bommer, André Bordigoni, Arnold Hoechel, E. Martin and Marc-J. Saugey, "charged of establish[ing] the directives for the planning [and extension] of the city and the Canton"[82].



045. Report of the *Commission d'étude pour le développement de Genève* (1948).

Catherine Courtiau (2007) – op. cit., p.60.

79 "(…), chevaucher la frontière pour aménager les 80 hectares nécesssaires, (...)" in Idem.

80 "(…), densification, (…), des zones de villas et des terrains agricoles, (...)" in Ibidem.

81 "(...), compromit, (...), l'équilibre et l'harmonie de la ville, (...)" in Ibidem.

82 "(...), chargée d'établir les directives pour l'aménagement de la Ville et du Canton." in Ibidem, p.62.

At the time, the spread of new ideas on architecture and urban-planning increased, by the propagation of architecture magazines and journals, including "those of French language, [that] offer[ed] a fairly wide range of influences"[83]. The Athens Charter, Le Corbusier's projects and the first new English towns, were the new references for the history of Modern urban-planning.

These "new models of towns and urban plans based their legitimacy on the critic of the traditional city, being considered incompatibles with the conditions of modern life"[84]. Their ideas were evoked to convince the State powers of the necessity to demolish the ancient tissues and built new ones.

The work of this study commission, known as the *Groupe des cinq,* was published in the *Rapport de la commission d'étude pour le développement de Genève* or report of 1948.

Inspired by these revolutionary ideas, it proposed the demolition and reconstruction of the neighbourhood of *Eaux-vives*, one of the old districts of Geneva, and the construction of new neighbourhoods in the old suburban communes. In addition, it suggested the project of an industrial zone for *Praille-Acacias* and the convergence of the international routes in the harbour, "in two-way-fast traffic routes with continuous flow, without crossing, connecting the «highways» to the city centre"[85], by a "system of large radial and tangential arteries, (…), [forcing] "the commercial traffic"[86] to contour the city.

Envisioning a limited urban population of 200.000 inhabitants, it forecasted a satellite-city of 100.000 inhabitants for *Peney*, "next to an industrial zone [and] a fluvial port"[87], hence the rest of the Canton should be left essentially rural.

In addition, they also gave a negative feedback to the project of Jean-Marie Ellenberger of a fairway connecting the *Rhône* to the *Léman*, once its tracing demanded the demolition of parts of the districts of *Saint-Gervais* and *Pâquis*. Nevertheless, "the question of the canal would paralyse the realisation of [important urban] projects for an undetermined period"[88].

02.1.3.3 The new housing developments and the new buildings of the city-centre

These large scale projects were replaced by partial or sectorial plans, result of the urgent need for dwellings and touristic infrastructures.

The most modest inhabitants were driven to housing estates or garden-cities built in large domains of the periphery. In *Vermont* (1946-1950), coordinated by the architect and director of the School of Architecture of the University of Geneva, Eugène Beaudouin (1898-1983), a continuous articulated

83 "(...), celles de langue française, offrent un champ assex vaste d'influences, (...)" in Jean-Marc Lamunière (1999) – op. cit., p.65.

84 "(...), les nouveaux modèles de ville et de développement urbain fondent leur légitimité sur une critique de la ville traditionnelle, jugée desormais incompatible avec les conditions de la vie moderne." in Idem, p.62.

85 "(...), en voies à traffic rapide et à debit continu, sans croisement, reliant les «autoroutes» au centre de la ville, (...)" in Catherine Courtiau (2007) – op. cit., p.63.

86 "(...), un système de grandes artères radiales et tangentielles, (...), le traffic commercial, (...)" in Idem, p.62

87 "(...), à proximité d'une zone industrielle, d'unt port fluvial, (...)" in André Corboz – op. cit., p.19.

88 "(...), la question du canal allait paralyser la réalisation de ces projets pour une durée indéterminée." in Catherine Courtiau (2007) – op. cit., p.62.

volume, following the slop of the plot, enclosed in itself a central green space[89], whereas in *Beaulieu*, projected by the Honegger brothers, blocks were disposed alternating with green spaces[90]. These two types of interventions were the models to intervene in the urban suburbs.

The urban plan of *Vermont* inspired the design of *Marillon-Parc*, projected by André Gaillard (*1921) for the *Grand Saconnex*, in 1960. This articulated plan would also be recovered in the 1960s for the construction of the great housing complexes of *La Gradelle* and Lignon.

The architects also profit from this operations to develop new methods of construction, especially prefabrication techniques. Particularly, in the work of the Honegger brothers, the use of the parallel block was linked to the development of "a system of standardization and rationalization of construction, at all levels and for different sizes of buildings"[91].

First studied in the construction of the housing complex of *Frontenex*, in 1934, they quickly understood the advantages of "combining light prefabrication with traditional methods, (…), [at] an affordable price"[92]. The formula type, was then developed after the war, first in *Deux-Parc* (1947-1949) and later in *Beaulieu* (1950-1952), where it was improved. Here, "a module of 60 cm marking the floor plan grid facilitated the use of standardised elements"[93].

They distinguish themselves by a series of projects of urbanisation of the periphery and restructuration of old districts, as *Balexert* and *Jonction*.

High housing complexes were also constructed in the immediate surrounding neighbourhoods of the city, as Saugey's *Malagnou-Parc* (1948-1951) and *Miremont-le-Crêt* (1953-1957). *Malagnou-Parc* marked the first Swiss housing experience of heavy prefabrication and *Miremont-le-Crêt* was the proof that "the interest in the technical experience does not exclude other concerns"[94].

The investment in the city-centre of Geneva was notable, with the construction of office and commercial buildings, particularly in the neighbourhood of *Saint-Gervais*, where Saugey had a remarkable influence and was "indisputably the protagonist figure"[95]. In this neighbourhood he built the *Hôtel du Rhône* (1947-1950), the *Mont-Blanc Centre* (1951-1954), the *Terreaux-Cornavin* (1951-1955) and the *Gare-Centre* (1953-1957).

The *Hôtel du Rhône* was the perfect example of "flexible exploitation adapted to the market"[96] with "the juxtaposition of cellules with convertible functions: hotel room, office and studio"[97]. *Mont-Blanc Centre* was the first Swiss commercial building to be built using the technique of "vacuum concrete",

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89 Cf. André Corboz – op. cit., p.25.

90 Cf. Jean-Marc Lamunière (1999) – op. cit., p.63.

91 "(…), un système de normalisation et de rationalisation de la construction, à toutes les échelles et pour des gabarits différents d'immeubles." in Idem, p.63.

92 "(...), alliant préfabrication légère et méthode dite traditionnnelle, (...), un prix fort avantageux." in André Corboz – op. cit., p.25.

93 "Un module de 60cm marque la grille du plan d'étage, facilitant ainsi l'utilisation en série d'éléments normalisés." in Idem.

94 "(...), l'intérêt de l'expérience technique n'exclut pas d'autres préoccupations ." in Ibidem, p.31.

95 "(...), indiscutablement figure de protagoniste." in Jean-Marc Lamunière (1999) – op. cit., p.63.

96 "(…), une exploitation souple, adaptée au marché." in André Corboz – op. cit., p.31.

97 "(…), justaposition, (…), de cellules à function convertible: chamber d'hôtel, bureau, studio." in Idem.

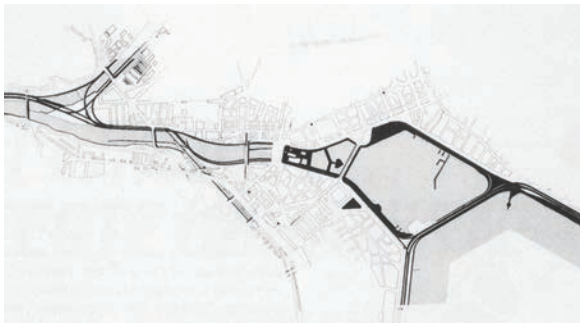
allowing to “striping the formwork little after the casting”[98]. In addition it had also the first aluminium curtain-wall of Switzerland, and its cinema, *Le Plaza*, revealed an extremely interesting use of an aluminium structure. *Terreaux-Cornavin* and *Gare-Centre* represented the association of commercial and housing uses in a single building, important to “the revitalisation of the urban centres”[99].

02.1.3.4 The projects for the crossing of the harbour and the circulation networks

Despite the success of these projects, both the Municipal Council and the architect Jean-Jacques Dériaz were critics of the attitude of the DTP, because “this emergency management, where each project is treated individually, with no overall vision, resulted in an inconsistency” [100] in the urban planning of the city. In addition, Saugey’s avant-garde works in the neighbourhood of *Saint-Gervais* were also subject of severe criticisms.

Trying to present solutions to this problem, Saugey, Brera-Waltenspühl and Honegger’s offices, participated together in a competition for a route-connection between the two shores of the lake. The project, named «Nonstop» promoted “one-way fast routes, arranged along the docks and passing under the bridgeheads, lined with marginal routes of slow traffic”[101]. Obtaining only the 4th prize, they would later present a common study englobing all the urban agglomeration.

To complete these propositions, Nierlé, Brera and Waltenspühl’s offices proposed a synthesis project for the circulation network, constituting of “a double network of express-ways traffic with continue circulation, without traffic-lights or crossings”[102] along the banks of the *Rhône*, as well as “a belt serving the outer neighbourhoods”[103]. Inspired on Le Corbusier’s ideas, Brera (*1919) and Waltenspühl (*1917) as members of the CIAM, presented this project in its 10th congress in Dubrovnik, in 1956.



046. Brera, Nierlé and Waltenspühl, project for the crossing of the harbour, scheme (1955).

047. Brera, Nierlé and Waltenspühl, project for the crossing of the harbour, photomontage (1955).

98 “(…), décoffrer le béton peu après le coulage.” in Ibidem.

99 “(…), la «revitalisation des centres urbains», (...)” in Ibidem.

100 “Cette gestion d’urgence, où chaque projet était traité cas par cas, sans vision d’ensemble, entraîne une incohérence, (...)” in Catherine Courtiau (2007) – op. cit., p.64.

101 “(…), des voies de circulation rapide à sens unique, aménagées le long des quais et passant sous les têtes de ponts, doublées de voies bordières à circulation lente.” in Idem, p.66.

102 “(…), un double réseau de voies expresses à circulation continue, sans feu ni croisements à niveau.” in Ibidem.

103 “(…),une ceinture desservant les quartiers extérieurs, (...)” in Ibidem.

02.1.3.5 The new laws of 1957 and the housing developments of the 1960s

Since 1945 Geneva had been facing a housing crisis that would only be resolved in the 1960s.
In 1955 and 1957, two laws were voted on the HLM (*Habitations à Loyer Moderé*), as well as a law on the organisation of the expansion zone. With these laws "the Great Council of Geneva[104] authorised the State Council to declass plots of land located in village or agricultural zones, [in order] to classify them as residential zones"[105]. These made possible the creation of "approximately 100 000 dwellings"[106], between 1955 and 1973, in the periphery of the urban centre.
Following the approval of these laws, the first satellite-city of Geneva was built in the agricultural commune of *Meyrin* (1961-1967), near the airport, by the Honegger brothers, whose buildings were designed by different architecture offices. Its orthogonal plan was the model to the housing estate of *Lancy-Onex* (1961-1967), projected by the State of Geneva. The Honegger brothers distinguish themselves by other remarkable housing estates as the *Cité Nouvelle Onex-Lancy* and the complex «*Nouvelle Air*».
George Addor (1920-1982) and Dominique Julliard's office, together with the Honegger brothers, developed the residential complex of *Budé* (1958-1962), one of the most remarkable real estate operations of the epoch.
La Gradelle (Hentsch, Zbinden, Alfandary, Gampert and Gaulis, 1963-1967) and *Lignon* (Addor, Julliard, Bolliger and Payot, 1962-1971) appeared as a reaction to the orthogonal plans of *Meyrin* and *Lancy-Onex*, inspired by Beaudoin's projects of the precedent decades.
The *Tours de Carouge* (Archinard, Barro, Brera, Damay, Mégevand and Schwertz and Waltenspühl, 1958-1963) were the most radical application of these laws, with the implantation of five towers near the old village of *Carouge*.
At the same time, from 1958, low-rent workplaces were being created by the FIPA (*Fondation des terrains industriels Praille-Acacias*), whereas in the city-centre, numerous housing building were being reassigned into offices.

02.1.3.6 The *Groupe des onze*, the INTERASSAR, and the project of the new urban-planning commission

In 1956, a movement of a rationalist type, inspired in the achievements of the thirties, gathered eleven young architects – Jacques Bardet, Pierre Borsa, Pierre Bussat, Alfred Damay, Jean-Pierre Dom, Jean Duret, Jean-Marc Lamunière, François Maurice, Jacques Nobile and Alain Ritter – known by G*roupe des onze*[107].

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104 The Great Council is the legislative organ of the Cantonal of Geneva.
105 "(…), le Grand Conseil autorise le Conseil d'Etat à déclasser des terrains jusqu'ici situés principalment en zones de villas et agricoles, pour les reclasser en zones résidentielles, (...)" in Jean-Marc Lamunière (1999) - op. cit., p.67.
106 "(…) environ 100 000 logements, (…)" in Idem.
107 Cf. Ibidem, pp.65-66.

They reacted against the official urban-planning policy, defending a "planning based in the environmental study and not only in the graphical study"[108].

Although dissolved in 1963, they played an important role in Geneva, inspiring the construction of some housing complexes, as the HLM *«Les Ailes»* (François Maurice, Jean-Pierre Dom and Jean Duret, 1958), "propos[ing] for the first time the total prefabrication of the structural elements of a building"[109] and its façades, as well as interesting typological innovations. A more structural approach was led in the *Tours de Lancy* (Bussar and J-.M. Lamunière), "looking for a natural expression of housing"[110].

In 1957, another group of architects, the INTERASSAR (*Intergroupe des associations d'architectes du canton de Genève*) "denounced the too rapid development of Geneva, deploring that it was being carried without an urban planning doctrine and without taking into account problems of growth or the principles of the Athens Charter"[111]. Its report, which counted with the participation of Saugey, proposed the reorganisation of organisms in charge of the urban studies, once "the *Service d'urbanism* did not have sufficient time to the theoretical researches and to the elaboration (…) of the master plan"[112].

Therefore, it contributed to extreme disagreements between the various members of the urban planning commission, leading the Radical president Jean Dutoit to replaced its members by George Brera, Gérard Chatelain and Marc Saugey.

In 1959, the *Département de travaux publiques* presented an official study concerning the circulation in the city.

02.1.3.7 The URBAT and the project of a harbour for 500 000 inhabitants

As an answer to "this situation of uncertainty and contradictions"[113], a group of fifteen architects from Geneva, including Saugey, decided to create the group URBAT. In 1960 they presented a schematic master project for the future twenty years, of a city for 500.000 inhabitants.

Suggesting a zone planning, the project was focused in the restructuration of the old neighbourhoods and the development of new ones. The new peripheral extension forecasted the construction of new neighbourhood in the right-side shore for the international institutions and its officials, and in the left-

108 "(...), un urbanisme qui serait l'étude de l'environnement, et non plus seulement un exercice graphique." in André Corboz – op. cit., p.49.

109 "(…), propose, pour la premier fois à Genève, la préfabrication complète des éléments porteurs d'un bâtiment, (...)" in Jean-Marc Lamunière (1999) – op. cit., p.69.

110 "(…),à la recherche de l'expression naturelle du logement, (...)" in André Corboz – op. cit., p.61.

111 "(…), dénonçait le development trop rapide de Genève, déplorant qu'il s'effectue sans doctrine urbanistique et sans tenir compte des problèmes de croissance ni des principes de la Charte d'Athènes." in Catherine Courtiau (2007) – op. cit., p.68.

112 "(…), le Service d'urbanisme n'avait pas suffisamment de temps pour se consacrer aux recherches théoriques et à l'élaboration des principes et tracés d'un plan directeur." in Idem, p.69.

113 "(...), cette situation d'incertitudes et de contradictions, (...)", in Ibidem, p.70.

side shore for the cantonal administrators, as well as a new bridge crossing the lake. They also took into account on the proposed circulation network, “the imminent achievements around Geneva, the highway Geneva-Lausanne, the route to the *Mont-Blanc* and the *Midi* highway”[114].

048. URBAT project, model (1963). Inspired on Brera, Nierlé and Waltenspühl’s project of 1955.

In 1961, as a member of the URBAT and with his new position in the urban-planning commission, Saugey published his critics to the project of the DTP of 1959. He regretted that the directives of the commission for the development of Geneva were not followed. Moreover, he was critic of the non-planning of quality housing neighbourhoods around the international zone, which led the international officials to move to the “aristocratic” residential neighbourhood of *Florissant* and *Champel*, in the left-side shore, “creating an intense traffic in the *Mont-Blanc* bridge four times per day”[115].

02.1.3.8 The new study commission of 1961

With the new Radical legislature in the Great Council, in 1961, the Liberal magistrate François Peyot led a restructuration on the services of the *Département de travaux publiques*. This resulted in the creation of a new urban-planning commission, functioning as a study office, with much more

114 “(…), des réalisations imminentes autour de Genève, soit l’autoroute Genève-Lausanne, la Route Blanche, l’autoroute du Midi, (...)” in Ibidem, p.71.

115 “(…), d’établir un trafic intense quatre fois par jour, (...), sur le pont du Mont-Blanc.” in Ibidem.

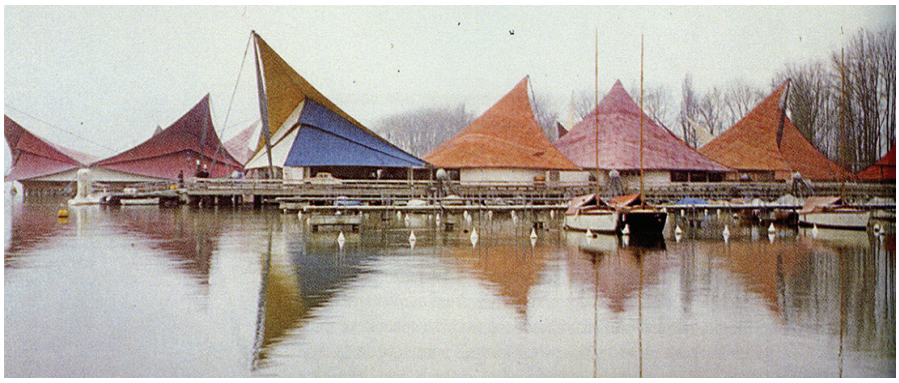
independence from the DTP. Saugey was the vice-president of this commission, since its creation to his death in 1971.

Apart from the new urban-planning commission, an architecture commission was also established, being responsible for the supervision of the works of the DTP in progress, therefore, leaving the study office time to develop projects and studies.

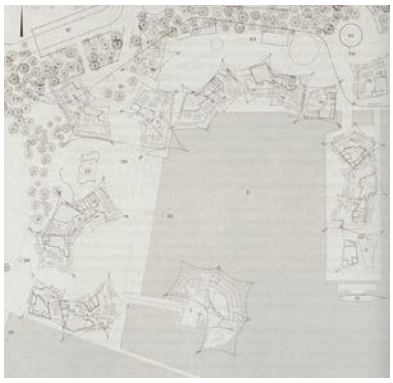
This office had the participation of the architects Marc Mozer, Claude Grosgurin, Gérard Chatelain, Arthur Bugna and Georges Brera, as well as other specialists, "traffic engineers, civil engineers, a sociologist, a doctor, an economist"[116].

It was responsible for the development of important communication and telecommunication networks, as well as big heath, education, sanitation, sports and housing programmes. Furthermore, it also developed great planning projects for the crossing of the harbour and the expansion of the city and its traffic networks.

02.1.3.9 The National Exhibition and the «overheating» laws of 1964



049. The National exhibition of 1964. View of the *Secteur du Port* (Marc J. Saugey).



050. The National exhibition of 1964. Plan of the *Secteur du Port* (Marc J. Saugey).

The National exhibition of Lausanne of 1964, was prepared by the Geneva section of the *Fédération des architects Suisses*, which had Saugey as president (member since 1956, president between 1958 and 1964).

A highway, connection Geneva to Lausanne, was constructed and inaugurated in 1964. Several architects, members of the FAS were responsible for the design of the pavilions. It was the opportunity for Switzerland to propose its own response, in the light of Le Corbusier and the Team Ten's experiences[117], to the continuous loss of quality of its architecture and urban-planning.

Nevertheless, the exhibition did not answer "the expectations of numerous architects and urban-planners"[118]. It was therefore a turning point in Saugey's career, who "fixed his attention in the urban-

116 "un ingénieur du trafic, des ingénieurs civils, sociologue, médicin, économiste, (...)" in Ibidem, p.73.

117 Cf. Jean-Marc Lamunière (1999) – op. cit., p.74.

118 "(…), les attentes de nombre d'architectes et urbanistes." in Catherine Courtiau (2007) – op. cit., p.74.

planning, (…), less than in the new architectural conceptions and innovative techniques"[119].

The development of housing estates in the suburban communes, "where the lower land prices encouraged extensive speculative operations"[120], led the Federal Government, in 1964, to take measures in order to curb the inflation. The imposition of the laws on "overheating" resulted in the suspension and cancelation of several projects.

02.1.3.10 The master plan of 1965 and the projects for the international zone

In 1965 the urban-planning commission was reorganized again and, therefore, the study office was not consulted again, except when requested. However, Saugey maintained his position of vice-president of the commission.

The commission dedicated this legislature to the plan and development of the international zone, as well as the project and construction of exhibition and congress complexes, university complexes, secondary schools, public health programmes, housing complexes and the green areas.

In the end of its legislature, in 1965, a report was elaborated, containing the master plan of a city of 800.000 inhabitants. The report argued that the collective facilities were insufficient and the circulation network was suffocating[121].

The new master plan, besides being inspired in the plan of 1948, was also inspired in the application of Le Corbusier's rule of the *7V*[122]. Saugey had a large contribution in the study of this alveolar plan[123], regarding the surrounding of the urban sector by large traffic routes.

051. Geneva's master plan of 1965. Published in the *premier compte-rendu de la commission d'urbanisme, DTP, Genève* (1966).

052. Marc J. Saugey, model for the ZADAI, *Zone à destination des activités internationales* (1968). Pink: organizations, institutions, foundations; yellow: housing; red: roads; green: pedestrian paths; black: CFF.

119 "(…), fixa son attention, (…), sur l'urbanisme et moins sur des conceptions architecturales et techniques innovantes, (...)" in Idem.

120 "(...), où des prix des terrains, inférieurs, ont encouragé de vastes opérations spéculatives." in André Corboz – op. cit., p.19.

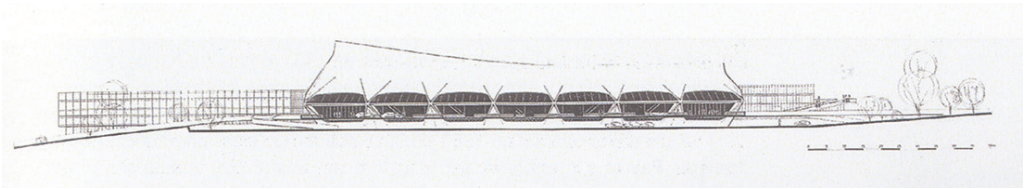
121 Cf. Catherine Courtiau (2007) – op. cit., p.76.

122 Classification developed by the ASCORAL (*Association de constructeurs pour une rénovation architectural*), which had origin in the French group of the CIAM, presided by Le Corbusier since 1943. It proposed the development of the circulations, from the highway to the sidewalk, according to a hierarchy established by Le Corbusier with the name "règle des 7 voies". Cf. Idem.

123 Cf. Ibidem.

Several projects were also developed concerning the construction of new facilities for the international organisations and the planning of the international zone.

In 1971, the project of a Congress House was developed by the architects André (*1921) and Francis Gaillard (*1928) and Alberto Camenzind (1914-2004), with the construction of the *Centre international de conferences de Genève*.



053. Marc J. Saugey, project of a Congress House, "*Jamais trop grand*" (1958). North elevation.

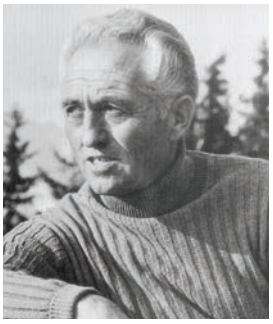
Saugey also participated in the study of the development of the international zone and the implantation of new buildings, along with the DTP. His urban-planning career ended with a report on this study, as well as a model, showing a vast public park in this area, a natural reserve Saugey wanted to preserve. This plan was presented in February 1971, one month after Saugey's death, and although it was never realised, the final project for this area, contained the *Jardin des Nations*, maybe inspired by him.[124]

124 Cf. Ibidem, p.80.

02.2 The architect Marc-Joseph Saugey

The Swiss architect Marc-Joseph Saugey was born on April 24th 1908 in *Vésenaz*, a village in the commune of Collogne-Bellerive, a municipality of the Canton of Geneva, located in the shore of Lake *Léman*. He died at the age of 62, on January 7th 1971, in Geneva, and is buried in the cemetery of *Vésenaz*[125].

He was the son of Cécile and Jean Louis Saugey, a French entrepreneur who earned a living with a small masonry company established in *Vésenaz*[126]. Saugey attended the primary education school of *Collonge-Bellerive*[127] and then continued his studies in the *Collège Moderne*[128]. In 1933, he married Danielle Bertrand, a French with whom he had a daughter, named Francine, born in 1935. His wife Danielle died, two years later, in 1937, in a car accident. Saugey got married again, in 1941, with Suzanne Guelpa, also French and "the daughter of the president of the Geneva French Circle"[129].



054. Saugey in Gstaad (approximately 1960).

In 1923, he joined the section of construction and civil engineering of the *École des Arts et Métiers* of Geneva, also known as *Technicum*, obtaining his diploma in 1926. With the title *Icare*, his project consisted on "the supposed fragmentation of the airfield of *Cointrin* into four parts: agricultural exploitations, garden-cities, neighbourhoods of villas and public domain"[130]. Imposed by the school dean, it was developed in collaboration with another student. As said by Catherine Courtiau, "no one would consider moving this airfield"[131], therefore, the choice of the title can be seen as a critic to the project: Icarus was a mythical Greek figure, who disobeyed his father Daedalus, on their escape from the Minos labyrinth, by approaching the sun with his wax glued wings, which made him fall into the sea[132].

Hereafter, the first steps of the young Saugey's architectural career are not certain. According to Alberto Sartoris, in the following two years, Saugey attended the architecture section of the *École de Beaux-Arts* of Geneva[133], then starting a four-year period of practicing abroad, in different architecture offices, Swiss, German and French.

Therefore, it seems probable that he had travelled to Frankfurt to visit the *Weissenhof* exhibition, in 1928, as well as it is plausible that he had lived and worked in Paris for some months, although an

125 Cf. Armand Brulhart - "Marc Saugey (1908-1971) ou la tentation d'Icare" in Giairo Daghini (dir.) – *Faces,* nº. 21, Genève: EAUG, 1991, p.8.

126 Cf. Catherine Courtiau - "Saugey, son parcours professionnel, les institutions politico professionnelles de l'après-guerre, son action personnelle et sa propagande pour une architecture nouvelle" in Catherine Courtiau et al. – op. cit., p.83.

127 Cf. Alberto Sartoris - *Joseph-Marc Saugey 1908-1971 ou l'architecte retrouvée. Hommage à Saugey,* Cossonay: Editions des valeurs nouvelles, 1991, p.99.

128 Cf. Catherine Courtiau (2007) – op. cit., p.83.

129 "(...), fille du president du Cercle Français de Genève." in Idem.

130 "(…), le «morcellement suppose du Champ d'Aviation de Cointrin» en quatre parties: exploitations agricoles, cités jardins, quartiers de villas et domain public." in Ibidem.

131 "Rien ne permettait d'envisager le déplacement de ce champ d'aviation, (...)" in Ibidem.

132 Cf. Ibidem.

133 Cf. Alberto Sartoris – op. cit., p.99.

internship at Le Corbusier's office is not possible to be verified[134]. It is also credible that he had done an internship in a Swiss-German architecture office, even though its name is not known[135].

Saugey's name appeared for the first time in January 1931, as one of the founding members[136] of the *Groupe pour l'architecture nouvelle à Genève*, the GANG.

As other architects from his generation, Saugey left few writings, "claiming only a single and incomplete published work: "*La ville fonctionelle. Genève*", which was presented in the CIAM meeting of Athens"[137], in 1933. This work was prepared by the GANG, as member of the CIRPAC[138].

02.2.1 The "quiet modernity"[139] of the Atelier d'architectes (1933-1940)

In 1933, at the age of 25, Saugey started to work in Geneva as a civil technician in collaboration with Louis Vincent, René Schwertz and Henri Lesemann. Vincent, Saugey, Schwertz and Lesemann, together formed the architecture office VSSL, also known by *Atelier d'architectes*. Their collaboration lasted for eight years, between 1933 and 1940, and was very important to Saugey's development. Still, "none of them was member of the SIA (…) [or] seemed to have the academic title of architect"[140].

To the four young architects, the "idea of the predominance of the collective over the individual"[141] was the motto of their practice that along with their desire of "a merge between arts and sciences"[142], led them to some important partnerships: with the painter and artist Georges Aubert (1886-1961), Le Corbusier's cousin and the civil engineer Robert Maillart.

During its short existence, coincident with the years that followed the Great Depression, the office produced a large number of works and its "achievements (…) appear[ed] exceptional, if account is taken of the particularly difficult economic situation"[143]. Mainly focused on the production of villas and apartment blocks, their works were already well spread across Switzerland through the architectural journals of that epoch and the national and international press awarded prizes to some of the villas they built in the thirties[144].

The majority of those villas were almost exclusively located in the left-side shore of the lake, between the communes of *Cêne-Thônex*, *Collonge-Bellerive* and *Cologny*[145]. Some remarkable examples are

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134 Cf. Armand Brulhart (1991) – op. cit., p.9.

135 Cf. Idem.

136 Other founding-members were Alberto Sartoris, Francis Quétant, Boris Nazarieff, Jean-Henri Schürch, René Schwertz and Frédéric Gampert, Cf. Ibidem.

137 "(…), «La ville fonctionelle de Genève» présenté pour les CIAM d'Athènes." in Ibidem.

138 The elected executive body of CIAM, CIRPAC, was the *Comité international pour la résolution des problèmes de l'architecture contemporaine* (International Committee for the Resolution of Problems in Contemporary Architecture). Cf. Ibidem.

139 "Une «tranquille» modernité" in Philippe Meier - "Être moderne ou ne pas être" in Philippe Meier - *Marc-Joseph Saugey, Architecte*, Genève: FAS, section Genève, 2012, p.6.

140 "Aucun, (…), n'était member de la SIA, (…), ne semble avoir porté le titre universitaire d'architecte." in Catherine Courtiau (2007) – op. cit., p.84.

141 "À cette idée d'une prééminence du collectif sur l'individuel, (...)" in Armand Brulhart (1991) – op. cit., p.9.

142 "(...), d'une fusion des arts et des sciences." in Idem.

143 "(…), si l'on tient compte d'une conjuncture particulièrement difficile." in Ibidem.

144 Cf. Philippe Meier – op. cit., p.9.

145 Cf. Armand Brulhart (1991) – op. cit., p.9.

those of the villas *Berkovits* (1933) and *Riant-Coteau* (1934). On the contrary, the rental buildings were distributed in the city centre, with "the particularity of having introduced (…) the forms of Modern Architecture in the landscape of the Geneva"[146]. Amongst them, the buildings *4-6 quai des Arénières (*1934-1935) and the *28* and *60 quai Gustave-Addor* (1935; 1937-1938) distinguish themselves for their architectural quality. However, the *Tour de Rive* (1934-1938), designed in collaboration with the civil engineer Robert Maillard, stands as "the Modern icon of the urban landscape of Geneva"[147] and their most remarkable work.

055. Atelier d'architectes, *4-6 quai des Arénières* (1934-1935).

056. Atelier d'architectes, *28 quai Gustave-Addor* (1935).

057. Atelier d'architectes, *60 quai Gustave-Addor* (1937-1938).

"The VSSL was more concerned in solving problems of *language*, than to implement new approaches or invent new forms"[148] Their villas were still covered with traditional roofs, imposed by the legislation, "the openings were still windows in the walls and materials [used] were traditional"[149]. However, "the importance of the horizontals, the systematic use of continuous balconies (…), [the sharp contrast between volumes], the tripartite windows, the concrete plaster and the treatment given to the attic"[150], "revealed an unquestionable inspiration on Le Corbusier's"[151], at the same time that "the spirit of avant-garde of the young architects', (…), [met the] new aesthetic designs and (…) current needs"[152] of their time.

To this it might have contributed the fact that, since 1933, the *Atelier d'Architectes* was the address for the CIRPAC, allowing Saugey and their partners to receive by mail the "foreign journals of avant-garde, (…), and thus acquire different openings from *Werk* or *Moderne Bauformen*"[153].

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146 "(…), cette particularité d'avoir introduit, (...), les formes de l'architecture moderne dans le paysage de la rade." in Idem.

147 "(…), l'icône moderne du paysage urbain genevois." in Philippe Meier – op. cit., p.6.

148 "(…), le «VSSL» s'attache plus à resoudre des problèmes de langage que de mettre en place de nouvelles démarches ou d'inventer de nouvelles formes." in Idem, p.10.

149 "(…), les ouvertures sont encore des fenêtres dans des murs, les matériaux sont traditionnels." in Ibidem.

150 "(…), l'importance des horizontals, l'utilisation systématique de balcons continus ou des loggias, (...), les fenêtre tripartites, le béton crépi, le traitement soigné de l'attique." in Ibidem.

151 "(…), révélait l'induscutable inspiration de Le Corbusier, (...)" in Armand Brulhart (1991) – op. cit., p.9.

152 "(…), l'esprit d'avant-garde de ces jeunes architectes, (...), nos nouvelles conceptions esthétiques, (...), nos besoins actuels." in Idem.

153 "(…), les revues étrangères d'avant-garde, (...), et d'acquérir ainsi des ouvertures bien différents de celles de *Werk* ou de *Moderne Bauformen*." in Ibidem.

Despite his age, Saugey already displayed unequalled administrator qualities and a remarkable capacity for prospecting and real state promotion. The construction of the *Tour de Rive* is the perfect example of his great ambition. “Saugey’s contribution to this operation appears as a particularly decisive ability to interpreter the regulation, by his strong conviction and especially by his early mastery of the financial instruments of real estate development”[154]. Thus “the conquest of the tour corresponded to the conquest of his autonomy”[155].

In 1940, WWII put an end to the association of these four architects, who started to pursue their respective individual career. Still Saugey’s collaboration with the Atelier enabled him with “a mastery not only of the modern language, but also of construction”[156] that was indispensable for the future development of his career.

058. Atelier d’architectes, *Tour de Rive*, (1934-1938).

02.2.2 “Modern architecture is a good business”[157]: the office Marc-Joseph Saugey Architecte

Saugey opened his own architecture office in 1940, in the *quai Gustave Addor*. Until 1945, he counted with four, maybe five employees[158], a little number compared to the magnitude the office had after the War. Nevertheless and essentially focused on “restorations-transformations, mainly in the centre of Geneva”[159], “the number of transformations [completed], around forty in five years, and

154 “L’apport de Saugey dans cette operation apparaît comme étant particulièrement décisif par sa capacité à interpréter le règlement, par sa force de conviction et surtout par sa maîtrise précoce des rouages financiers de la promotion immobilière.” in Philippe Meier – op. cit., p.7.

155 “La conquête de la Tour correspondit à la conquête de son autonomie, (...)” in Armand Brulhart (1991) – op. cit., p.9.

156 “(…), une maîtrise, non seulement de l’écriture modernem mais aussi de la construction, (...)” in Philippe Meier – op. cit., p.10.

157 “l’srchitecture moderne était une bonne affair” in Duprée - “The significance of Marc J. Saugey”, *Architecture and Building*, 1957, p.45 in Armand Brulhart (1991) – op. cit., p.10.

158 Cf. Idem.

159 “(…), restaurations-transformations, et principalement au centre de Genéve, (...)” in Philippe Meier – op. cit., p.7.

the amount of projects [produced], around thirty in the same period"[160] allows to perceive the rapid growth of the office and its popularity. In order to have an actual production during the War years, Saugey knew how to benefit from the contacts he had established in the thirties, which together with his endless energy and the interest in exploring the "opportunities linked the notion of modernity"[161] gave him a career advantage in comparison with his old colleagues.

Saugey had also been elected, in 1939, to the supervisory board of the *Bureau d'entr'aide technique* (BET) that had just been created, as representative of the *Association des techniciens de Genève* (ATG). Two years later, in 1941, he joined the *Association syndicale des Architects* (ASA).

His belief in the future, in the search for new architectural and constructive solutions and in the training of the new generations, led Adrien Lachenal to consult him concerning the establishment of a School of Architecture in Geneva, which opened in 1942. Part of the action of the Radical party, this episode "raised the question of Saugey's political engagement"[162] and, although he had an attitude of advisor and energizer of the debate of ideas, he never had political ambitions. Nevertheless, he "was [later] elected to the Great Council, by accident, for some seven months, between 13 March and 10 October 1954"[163].

In 1946, Saugey's moved his office to the last three floors of the *Tour de Rive*: "The ground floor welcomes the visitors, the 6th and 7th floors gather the drawing activity, and the "boss" occupied, in private, the last floor"[164].

059. Saugey in his office at the *Tour de Rive* (May 15 1959).

160 "(…), le nombre de transformations, près de quarente en cinq ans, et la quantité de projets, près de trente pour la même période." in Armand Brulhart (1991) – op. cit., p.10.

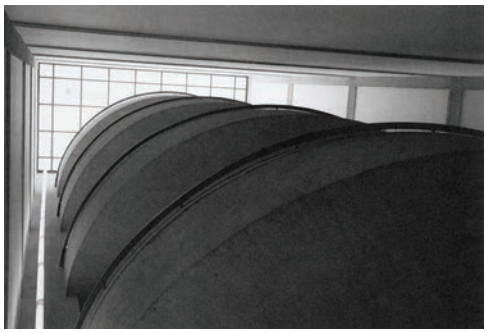
161 "(…), des opportunités liées à la notion de modernité." in Philippe Meier – op. cit., p.7.

162 "(…), pose la question de l'engagement politique de Saugey." in Armand Brulhart (1991) – op. cit., p.9.

163 "Il ne fut d'ailleurs élu au Grand Conseil que par accident et pour quelque sept mois, entre le 13 mars et le 10 octobre 1954." in Armand Brulhart (1991) – op. cit., p.10.

164 "Le rez-de-chaussée accueille les visiteurs, le sixième et septième étages concentrent l'activité de dessin, le «patron» occupant à titre privé le dernier étage." in Philippe Meier – op. cit., p.8.

From this year on, the works of the office were remarkable, especially the building of the *Assurance Suisse* (1946-1947) realised in collaboration with Antoine de Saussure and the *Bâtiment des Électrodes* (1946-1947) built in collaboration with the *Ateliers Sécheron* and that "can be considered as one of the most brilliant realisation of this kind in the after-War Switzerland"[165]. Through these two commands Saugey's talent was publicly recognised, as well as "the loyalty of his first sponsors: the Director of the *Compagnie d'Assurances National Suisse*, Hans Theler, who was one of his companions in *Giverola* (1954-1968), Spain, and the engineer Georges Lemaître Sécheron"[166] who was essential for the project of the *Hôtel du Rhône* (1947-1950).



060. Marc J. Saugey, *Compagnie d'Assurance Nacional Suisse* (1946-1947).

061. Marc J. Saugey, *Bâtiment des électrodes*, Ateliers de Sécheron (1946-1947).

In 1945, Saugey was nominated for the *Comission d'étude pour le développement de Genève* by the *Département des travaux publiques,* which resulted in his participation on the elaboration of the Report of 1948. From this moment on, he saw his urban-planning competences recognised and, in 1946, "he is one of the speakers of the Club 44, in *La Chaux-de-Fonds*"[167]. Three years later, in 1948, he "participated in the founding meeting of the *Union international des architects* (UIA), under the label «architect CIAM», which demonstrated the importance he attached to this movement, [of which] he was not formally a member"[168].

Saugey's office reached an unprecedented size for Geneva in 1948, with around 25 to 40 employees, who were essential to program and supervise constructions sites like the *Hôtel du Rhône* or the *Malagnou-Parc* (1948-1952), including the architects Louis Bongard, Christian Hunziker, Rober Frei, André Corbat and Pierre Karlen[169].

"Although often absent [in business trips, Saugey] was able to create a formula of workshop"[170],

165 "(…), peu être considéré comme une des plus brillantes réalisations de ce type dans la Suisse de l'après-guerre." in Armand Brulhart (1991) – op. cit., p.10.

166 "(…), la fidélité des commanditaires: le directeur de la Compagnie d'Assurance Nationale Suisse, Hans Theler, fut l'un des compagnons de Giverola en Espagne, et l'ingénieur Georges Lemaître Sécheron, (...)" in Idem.

167 "(…), il fut l'un des premiers conférenciers genevois du Club 44." in Ibidem.

168 "(…), prit part à l'assemblée constitutive de l'Union internationale des architectes (UIA), (...), sous l'étiquette d'«architecte CIAM», ce qui démontre l'importance qu'il attachait à ce mouvement, dont il n'était pas membre formellement." in Catherine Courtiau (2007) – op. cit., p.85.

169 Cf. Idem, p.84.

170 "Bien qu'il fût le plus souvent absent, il sut créer une formule d'atelier." in Armand Brulhart (1991) – op. cit., p.10.

inside his own office, through which the research was stimulated. He promoted, between his collaborators, internal competitions and then did the critic of each project. This method "allowed him to have a large amount of solutions in which he could find a way for his architecture, which his schedule did not allow him to explore personally"[171].

062. Marc J. Saugey, *Hôtel du Rhône* (1947-1950). Photo Alan Grandchamp.

063. Marc J. Saugey, *Malagnou-Parc*, angle *avenue Malagnou avenue Weber*, (1948-1951). Photo De Jongh (Fonds Saugey IAUG).

02.2.3 Learning the real state affairs: the architect-manager

Saugey "was certainly unique and therefore the first «American» architect that Geneva knew"[172]. From across the Atlantic, "he retained the lesson of the architect-manager", who directs a project with a global vision of it, as Le Corbusier also defended.

From this moment in his career, the alliances around Saugey strengthened, which "explain (…) the great impulse that he managed to give to the right-side bank of Geneva"[173]. He counted with several advisers and suppliers of capital for his contracts: "Me Bernasconi, notary, Chamay & Thévenoz, real state directors, Emile Dupont, future counsellor of State, Jean Babel, accountant expert, future counsellor of State, George Filipinetti, industrial"[174] and Max Brieger, director of the *Union de Banques Suisses*. And at this epoch, he was also in many construction companies as a shareholder or the shareholders' president.

Since 1955, his business card even said that apart from being "real estate expert with the Federal Government and various Swiss courts"[175], he "was [also] appointed by the major Swiss banks as expert of the *Foncipars*, a real state trustee owner of buildings worthing approximately one hundred

171 "Il disposait ainsi d'une grande quantité de solutions dans lequelles il pouvait trouver la voie pour son architecture, que son emploi du temps ne lui permettait pas d'explorer personnellement." in Philippe Meier – op. cit., pp.8-9.

172 "(…), il fut trés certainement l'unique et donc le premier architecte «américain» que Genève ait connu." in Idem., p.8.

173 "(...), expliquent, (…), la formidable impulsion qu'il réussit à donner à la rive droite de Genève." in Armand Brulhart (1991) – op. cit., p.10.

174 "(...), Me Bernasconi, notaire, Chamay & Thévenoz, régisseurs, Emile Dupont, futur Conselleir d'Etat, Jean Babel, expert comptable, futur Conseiller d'Etat, Georges Filipinetti, industriel, (...) " in Idem.

175 "(...), expert immobilier auprès de l'administration fédérale et divers tribunaux suisses, (...)" in Ibidem.

million Swiss francs"[176].

02.2.4 The 1950s: "an architecture that plays impressively with immateriality and weightlessness"[177]

For Armand Brulhart, it is "impossible to talk about Geneva in the fifties without mentioning (…) Saugey"[178], because in this decade, his architecture "represents, without question, the most original that Geneva has left"[179] from those years. "With exception of the *Tour de Rive*, [his most important projects were built] between 1950 and 1958 – *Hôtel du Rhône* (1947-1950), *Malagnou-Parc* (1948-1952), *Mont-Blanc* Centre (1951-1954), the cinema *Le Paris* (1955-1957), *Terreaux-Cornavin* (1951-1955), *Miremont-le-Crêt* (1953-1957) and *Gare-Centre* (1954-1957) – mark[ing]strongly the urban landscape [of the city], (…), [and] representatives of a particularly innovative architectural speech"[180]. However, understanding the importance of his work in this decade requires the comprehension of the modern avant-garde history of architecture in Switzerland[181] and the fact that, the post-War years, embraced also a return "towards the achievements of the thirties: the development of a punctual structure as assertion of the *Neue Sachlichkeit*, Perret's publications, Le Corbusier's theories (…), [and his] *Dom-Ino* model"[182].

Within this context, Saugey always knew how to "identify the question posed by the site, the programme, the economy and the technology"[183] to each of his projects, manifesting "an ability, sometimes diabolic, to transform the constraint into the protagonist of his solutions"[184]. His method englobed a continuous double research – on one hand, focused in the economy, "that didacte[d] the programmes, specially the measure of densities and the propositions of urban mixity, as well as the research for the most performant typological articulations, particularly in the distributive and functional plan"[185] and, on the other hand, "the constant search for the new, (…), to find the legit

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176 "nommé par les grandes banques suisses comme auteur et expert «Foncipars», trustee immobilier possédant environ cent millions de francs suisses d'immeubles." in Ibidem.

177 "(...), une architecture que joue de façon étonnante avec l'immatérialité et l'apesanteur, (...)" in Rem Khoolhaas, "Trente ans après", *Les années 50*, Catalogue d'exposition du Centre Georges Pompidou, Paris, 1988, p.474 in Armand Brulhart (1991) – op. cit., p.10.

178 "Il est impossible de parler de Genève dans les années '50 sans évoquer la figure de Saugey." in Idem.

179 "(...), il répresente, avec des aspects inégaux, ce que Genève a laissé de plus original." in Ibidem.

180 "(...), à l'exception de la Tour de Rive, (...), de 1950 à 1958 – Malagnou-Parc, l'Hôtel du Rhône, Mont-Blanc Centre, le Plaza, Terreaux-Cornavin, Miremont-le-Crêt et Gare-Centre qui marquent le plus fortement le paysage urbain genevois tout en représentant les lieux d'un discours architectural particulièrement innovateur." in Patrick Devanthéry - "La contingence et l'apesanteur" in Giairo Daghini (dir.) – op. cit., p.4.

181 Cf. pp.31-55

182 "(…), vers les acquis des années trentes: développement de la structure ponctuelle comme afirmation de la *Neue Sachlichkeit*, les publications des oeuvres des frères Perret, ou celle de Le Corbusier qui a théorisé, (...) avec le modèle *Dom-Ino*." in Philippe Meier- op. cit., p.10.

183 "(…), á identifier la question posée, (...), par le site, par le programme, par l'économie ou par la technologie, (...)" in Patrick Devanthéry (1991) – op. cit., p.4.

184 "(…), une habilité, parfois diabolique, à faire de la constraint un protagonist éclairant de ses solutions, (...)" in Idem.

185 "(…), dicter les programmes, notamment la mesure des densités et les propositions de mixité urbaine, d'autre part, rechercher les articulations typologiques les plus performantes particulièrement sur le plan distributif et fonctionnel, (...)" in

architectural expressions, by using the products of the industry"[186] and the adequate materials. Therefore, belonging to a generation that "benefit[ed] from the end of the War and the Reconstruction to build a new career"[187], Saugey "managed to transform, (…), [his] economic preoccupation into real architecture and urban issues"[188].

064. Marc J. Saugey, *Hôtel du Rhône*, type plan (1947-1950).

065. Marc J. Saugey, *Hôtel du Rhône*, view of the hall (1947-1950).

The *Hôtel du Rhône* (1947-1950) stands as "the first anti-conformist manifestation in the architecture of the post-War"[189], as Saugey's sketch showed, "express[ing], strongly, the movement of the building, as if it had the velocity of a train and, as if the international image of the Palace of Nations (…) had sudden turned to the Modern Movement". Its construction, lasting 26 months, made Saugey gain the trust of the entrepreneurs. Nevertheless, it also made him the target of several criticism, from both public and architects, as Maurice Braillard who wrote that "Saugey's architecture reveal[ed] a «mechanical conception» and a «capitalist formality»"[190].

Inaugurated in 1950, Saugey used here the same structural principal as in the *Bâtiment des Electrodes* (1946-1947), where its industrial programme offered "Saugey the possibility to develop a highly pure and efficient static concept, whose reflection on the façade is expressed with a lot of simplicity"[191]. However, here he was imposing an industrial structure to the function of a hotel, meaning that the carriers were positioned following rigorously the rhythm of the partition between

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Ibidem.

186 "(…), d'une quête de la nouveauté, (...), comme volonté d'afficher des expressions architecturales légitimées, par la mise en oeuvre des produits de l'industrie." in Ibidem, p.5.

187 "(…), bénéficier de la fin de la guerre et de la reconstruction de construire une nouvelle carrière." in Philippe Meier – op. cit., p.9.

188 "(…), réussit à transformer ces préoccupations d'ordre économique en de véritable problématiques architecturales et urbanistiques." in Idem.

189 "(…), la première manifestation anticonformiste dans l'architecture de l'aprés-guerre." in Armand Brulhart (1991) – op. cit., p.10.

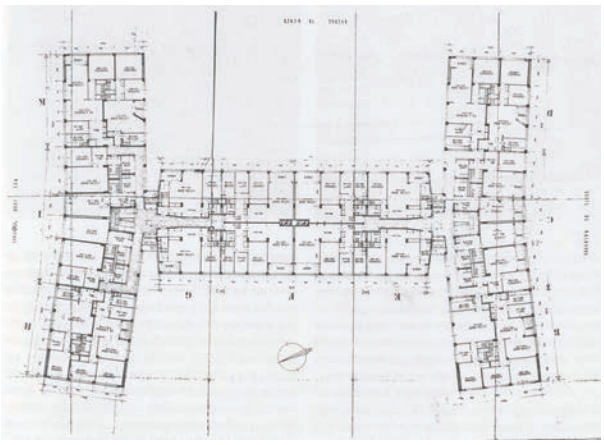
190 "(…), l'architecture de Saugey relève d'une «conception mécanique» et du «formalisme capitaliste»" in Idem.

191 "(...), l'opportunité de développer un concept statique très pur et très efficace, dont le reflet en façade est exprimé avec beaucoup de simplicité." in Philippe Meier – op. cit., p.9.

the rooms on each floor, "in proportions somewhat differentiated"[192], once there were two types of hotel rooms. This structural approach provided a free spatiality to the building, and also benefited the development and organisation of the construction site.

The possibility of transforming the hotel rooms, into offices or studios, was also a sign of Saugey's entrepreneur qualities, contributing, to the success of this operation.

066. Marc J. Saugey, *Malagnou-Parc*, View of the façade, (1948-1951).



067. Marc J. Saugey, *Malagnou-Parc*, Type floor plan, (1948-1951). Date from 11.01.1949 (Fonds Saugey, IAUG).

In the housing unit *Malagnou-Parc* (1948-1952), Saugey used again the same structural principle, however with the added component of prefabrication. Together with the industry, "he developed a system of heavy prefabrication for the whole of building, including its envelope"[193], in which was the first Swiss experiment of this kind.

The interior bearing-system was reflected on the concrete and stone prefabricated façade, whose pieces were designed, in order to have reasonable dimensions and not weight to much, avoiding "the use of complex lifting machinery"[194].

Before the War, Saugey had designed mainly transversal apartments, however in the 1950s, his statute of "promoter-architect" led him to more radical and economic solutions. In *Malagnou-Parc*, he decided to offer only mono-oriented apartments, choice that was contra-balanced by "the distribution spaces, [where he] managed to create a *promenade* bathed with natural light"[195]. This allowed him a "considerable gain in density: instead of 300 inhabitants per hectare, as recommended by the Report of 1948, he passed directly to 600 inhabitants, a doubling that directly benefited the real estate promotion"[196], allowing rents "20% lower than (…) the buildings constructed at the same

192 "(…),dans des proportions assez peu différenciées, (...)" in Idem, p.10.

193 "(…), il développe un système de préfabrication lourde pour l'ensemble de bâtiment, y compris l'enveloppe." in Ibidem, p.12.

194 "(…), l'usage de complexe machinerie de levage, (...)" in Idem, p.13.

195 "(…), distribution qui parviennent à créer un parcour baigné de lumière naturelle, (...)" in Ibidem, p.19.

196 "(…), un gain considerable sur la densité. Au lieu de 300 habitants à l'hectare préconisés par le Rapport de 1948, il passait directement à 600 habitants, un doublement qui profitait directement à la promotion immobilière, (...)" in Armand Brulhart (1991) – op. cit., p.10.

time, [and] of the same kind and class"[197].

After these two experiences, the 1950s marked a change in Saugey's approach towards structure. From this moment on, "the spatial partition will adapt itself to the load-bearing frame"[198], as reproduced, with variations, in the buildings *62 quai Gustave-Ador* (1951-1953), *Terraux-Cornavin* (1951-1955), *Miremont-le-Crêt* (1953-1957) and *Gare- Centre* (1954-1957).

Furthermore, in *62 quai Gustave-Ador* faced with the complex "Z" shape of the plot, Saugey managed to design three apartments, "skilfully dragged around the stairs"[199] and, although mono-oriented, the apartments gained a very interesting spatiality. This building was also the first example of Saugey's research on the window length, where "the height of the glass is proportional to the function which is hidden behind the façade"[200].

This choice of a "static module, (…), allow[ed] to build, (…), in a relentless logic of profitability"[201], however, it becomes more complex when the activities are overlapped. Therefore, a reflection should be taken not only concerning the structure but also the prefabrication of the façade.

068. Marc J. Saugey, *62 Gustave Ador* (1951-1953).

069. Marc J. Saugey, *62 Gustave Ador* (1951-1953).

070. Marc J. Saugey, *62 Gustave Ador*, type plan (1951-1953).

As a result, although he had barely experienced heavy prefabrication, "he launched himself on the experience of the curtain-wall"[202]. At the time, the Lever House in New York from Skidmore, Owings and Merril, was the example of "contemporary architecture becam[ing] «payable», and it was in this direction that Saugey pursued their references"[203]. However, instead of steel, Saugey worked with aluminium, "the new Swiss means of production"[204], which despite its potential, was little exploited. Along with the industry, the architect developed a "standard light module of façade"[205], having in

197 "(…), 20% plus bas que les, (...), les immeubles construit en même temps, de même genre et de même classe." in Idem.

198 "(…), la partitions spatiale qui va s'adapter à la trame porteuse." in Philippe Meier – op. cit., p.11.

199 "(…), habilement glissé autour des escaliers." in Idem, p.13.

200 "La hauteur du vide de lumière est proportionée par la function qui est abritée derrière la façade." in Ibidem.

201 "(…), du module statique qui va permettre de construire, (...), dans un logique implacable de rentabilité, (...)" in Ibidem, p.12.

202 "(…), il se lançait dans l'aventure périlleuse du curtain wall, (...)" in Armand Brulhart (1991) - op. cit., p.11.

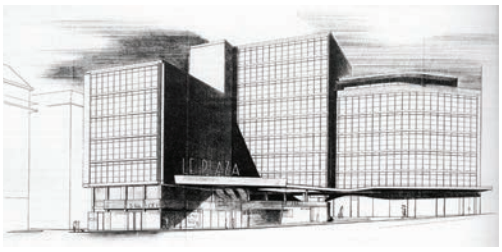
203 "(…), l'architecture contemporaine devenait «payante» et c'est bien dans cette direction que Saugey puissa ses références, (...)" in Idem.

204 "(…), les nouveaux moyens de production suisses, (...)" in Philippe Meier – op. cit., p.14.

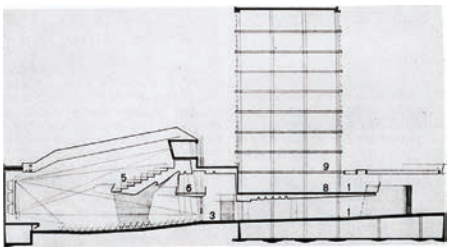
205 "(…), la standardisation d'un module de façade légère." in Idem.

sight the search for the right dimensions, in order to optimise its production, as well as its assembly time.

071. Marc J. Saugey, *Mont-Blanc Centre*, entrance to the offices (1951-1954).



072. Marc J. Saugey, *Mont-Blanc Centre*, perpective from the *rue Chantepoulet* (1951-1954).

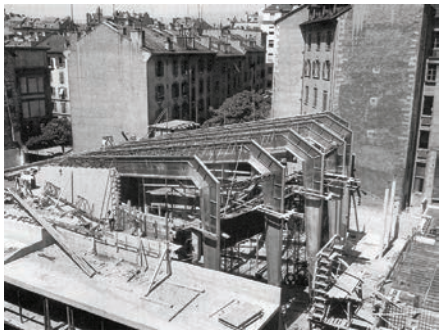


073. Marc J. Saugey, *Mont-Blanc Centre*, section across the covered passage and the cinema *Le Plaza* (1951-1954).

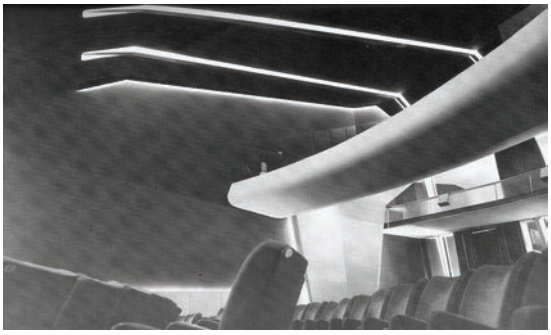
His first use of the curtain-wall was in the commercial building *Mont-Blanc Centre* (1951-1954), where he explored the possibilities of turning prefabricated elements around a prismatic volume. Nonetheless, the respect for a perfect modularity was not the main objective of this project, as it was the exploitation of the parcel towards its limits.

Simultaneously, the quality of his structural concepts allowed him to explore the notion of *plan libre* (developed by Le Corbusier) and "conceiv[e] spaces in their three-dimensionality"[206]. In this context, two themes interested him, oblique elements and ramps – "two approaches to a diagonal space that dialogue with the poetry of the right angle"[207], reflection of the structural frame.

In *Mont-Blanc Centre*, this theme was present, on one hand, in the ramp providing access to the entrance of the offices and, on the other hand, in the "second urban diagonal that leads the passing through the commercial gallery, in the direction of the foyer of the cinema *Le Plaza*"[208], connecting "the city to the inside of the building"[209].



074. Marc J. Saugey, cinema *Le Plaza*, view of the aluminium structure supporting the roof, during construction (1951-1954). Photo Max Kette.



075. Marc J. Saugey, cinema *Le Plaza*, view of the cinema room (1951-1954).

206 "(…), concevoir des espaces dans leur tridimensionnalité, (...)" in Ibidem, p.16.

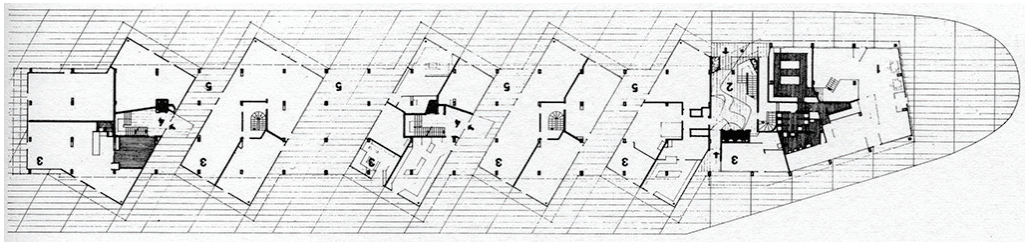
207 "Deux approaches d'un espace diagonal qui entrent en dialectique avec la poésie de l'angle droit, (...)" in Ibidem.

208 "(…), une deuxième diagonal urbaine qui accompagne le passant à travers le foyer du cinéma Le Plaza, (...)" in Ibidem, pp.16-18.

209 "(…), la ville à l'intérieur du bâti." in Ibidem, p.16.

Almost at the same time, Saugey conceived the curtain-wall for the lateral façade of the building *Terreaux-Cornavin* (1951-1955). Here, he affirmed "more clearly the suspended nature of the "skin" passing in front of the heads of the slabs"[210], which were no longer marked, allowing the façade to become "more smooth and abstract"[211].

Again, the theme of the diagonal was developed in the design of the ground floor. Here, Saugey invented a new way to cross under a bar – "place the volumes diagonally, allowing not only the offer of more important showcase surfaces [to the shops], but also increasing the urban permeability"[212]. For the apartments, the typology used – "a central staircase, distributing six or seven apartments, two of them transversal"[213] – was not of particular interest, although being very effective in the low ratio of utilization of the distribution space. Therefore, Saugey proposed "the re-thinking of the free plan"[214], designing the kitchen "as a large element of fixed furniture, arranged in various geometries, [and] releas[ed] of the orthogonally of the set"[215]. He used this same typology in the design of the *Gare-Centre* apartments.



076. Marc J. Saugey, *Terreaux Cornavin*, ground floor plan (1951-1955).

077. Marc J. Saugey, *Terreaux Cornavin*, façade of the offices (1951-1955).

078. Marc J. Saugey, *Terreaux Cornavin*, façade of the housing (1951-1955).

210 "(…), plus claie encore la nature suspendue de la «peau» passant devant les têtes de dalle." in Ibidem p.15.

211 "(…), plus lisse et plus abstraite." in Ibidem.

212 "(…), des volumes poses en diagonal qui non seulement offrent des surfaces de vitrines plus importantes, mais accréditent aussi une perméabilité urbaine, (...)" in Ibidem, p.18.

213 "(…), une cage d'escalier central, distribuant six, voire spt appartements, dont deux traversants." in Ibidem, p.19.

214 "(…), à re-pensée le plan libre, (...)" in Ibidem, p.19.

215 "(…), un grand élément de mobilier fixe, dispose selon des géometries diverses, libérées de l'orthogonalité de l'ensemble, (...)" in Ibidem.

Two issues related to the development of modular curtain-walls interested Saugey: the questions of "marking or not the head of slab and the treatment of the façade angle"[216]. Although all Saugey's curtain-walls were different, *Gare-Centre* (1954-1957) was certainly the work where he "better expressed the relation between the load-bearing structure and the envelope"[217]. However, the façade module varied, having a dimension of 100 centimetres in the office floors, and 216 centimetres in the housing floors, therefore the fitting on the corner of the façade was simple but slightly different in the two parts of the building.

Moreover, in this mixed used building, Saugey also developed the method of a total dry-construction.

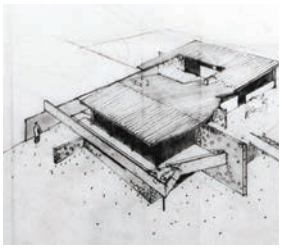
079. Marc J. Saugey, *Gare-Centre* (1954-1957). View of the curtain wall.

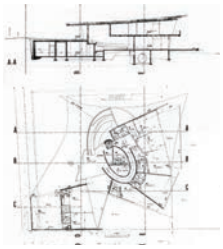
080. Marc J. Saugey, *Gare-Centre* (1954-1957). Demolished in 1987.

081. Marc J. Saugey, *Gare-Centre* (1954-1957). Entrance to the cinema *Le Star*.

The theme of the diagonal space was recovered again in a number of other examples: the commercial ramp of the small *Cité-Confédération* (1952-1954) building, the diagonal foyers of the cinema *Le Paris* (1955-1957), and the entry of the cinema *Le Star*, in the ground floor of the *Gare-Centre* building. This attention to the *promenade* is also found in the two *villas* Saugey realized in the early sixties: in the villa *Pregny-Chambésy* (1958) a ramp defined the central area around which the programme was develop as, in the villa in *Vésenaz* (1957), the approach was done by a concrete ramp that ended in a courtyard surrounded by the distributive spaces.

082. 083. Marc J. Saugey, *Cité-Confédération* (1952-1954). Demolished in 1978.





084. 085. Marc J. Saugey, villa in *Vésenaz* (1961-1962). Marc J. Saugey, villa in *Pregny-Chambésy* (1960-1962).

216 "(…), du marquage ou non de la tête de la dale et le traitement de l'angle, (...)" in Ibidem, p.14.

217 "(…), qui about it mieux cette relation entre la structure porteuse et l'enveloppe" in Ibidem, p.15.

Nevertheless, the most brilliant experience of these years, apart from the cinema *Le Paris,* was the housing building *Miremont-le-Crêt* (1953-1957), the case study of this dissertation work. “Never, thereafter, was Saugey at such a level of clarity in inventiveness”[218]. *Miremont* was “the project which answer better the challenges of the *free* space concept”[219], where the theme of the ramp was most beautifully developed, as well as the best example of Saugey’s inventive capacities applied to the typological research.

02.2.5 Promoting his architecture: architecture journals and the *Architecture, Formes, Fonctions*

Saugey was very aware of the importance of publicizing himself to create a *public opinion* favourable to his projects. Therefore, he made sure of his presence in the magazines and architecture journals of the time, Swiss and French (*Vie, Art, Cité*; *Bauen+Wohnen*; *Werk*; *L’Architecture d’aujourd’hui*; the *Bulletin Technique de la Suisse Romande* and *Urbanism and Architecture*), with his constructions and projects being documented.

He also wrote for many magazines of the French-speaking Switzerland (*Vie, Art, Cité*; the *Bulletin Technique de la Suisse Romande* and *Urbanism and Architecture*), “exalting his belief in the new time and the opportunities offered by the new technologies”[220]. However, Saugey missed a mean of international diffusion.

This changed when “he became one of the instigators and then the main investor of a new magazine that will be a privileged place for his interventions and the publication of his projects”[221]. First published under the name *Construction,* its name then changed to *Architecture, Formes et Fonctions*, when Anthony Krafft became its director. Since 1957, with Alberto Sartoris, “the magazine open[ed] itself to the international actuality, (…), diffusing examples of new techniques developed abroad”[222] and also contributing to publicise Saugey’s projects on an international level.

02.2.6 The international architect

Since 1933, being only 25 years old, and aside from being an architect, Saugey also controlled the construction company in charge of his works, by being one of its administrators. The double responsibility of being both the architect and the businessman is particularly important for understanding his international career.

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218 “Jamais, par la suite, Saugey ne parvint à un tel niveau de clarté dans l’inventivité.” in Armand Brulhart (1991) – op. cit., p.11.

219 “(...), le projet qui répond mieux aux défis de la notion d’espace libre.” in Philippe Meier- op. cit., p.16.

220 “(...), la croyance dans son époque et dans les perspectivess ouvertes par les nouvelles technologies.” in Catherine Dumont d’Ayot - “Architecture, Formes et Fonctions” in Giairo Daghini (dir.) – op. cit., p.17.

221 “Il deviant un des instigateurs puis le principal financier d’une nouvelle revue qui sera dès lors le lieu privilégie de ses interventions et de la publication de ses projets.” in Idem.

222 “La revue s’ouvre à l’actualité internationale, (...), diffuse les exemples des techniques nouvelles développées à l’étranger, (...)” in Ibidem.

Nonetheless, "nothing apparently predisposed Saugey to become an international architect, (…) He spoke only French and [his] first foreign experiences, (…), took place during the War, in France, on the *Côte d'Azur* and especially in Lyon. They only taught him the difficulties to be paid and didn't give him any recognition"[223]. Apart from several projects not built, he only did two factory transformations in Lyon (1940) and Annecy (1945).

It was only "with the *Hôtel du Rhône* [and the alliances he wisely knew how to make] that his international career started"[224]. The first and most decisive was with Richard Lendi, the director of the *Hôtel du Rhône*, who became his main ally in "the conquest [of] the foreign markets"[225]. This project gave Saugey the opportunity to participate in "a series of study trips [that allow him to, (…),] acquire a real specialisation in the construction of hotels"[226].

Along with the *Park-Hôtel* in Gstaad, the *Hôtel du Rhône* became one of the meeting places for many of Saugey's real estate deals - "from these two bases were hatched more than half of his office affairs"[227].

The operation of the *Hotel du Rhône* was the model for Saugey's international real estate operations. It modular capacity, possible to adapt to the cyclical economic and political alterations, allowed him "to «export» a combination of financial and architectural competences under the figure of an international architect specialised in the construction of hotel programmes"[228].

Therefore, "from 1948 Saugey undertook several study and hotel prospecting journeys promoted by the *Société d'Exploitation de l'Hôtel du Rhône* (SEHR), and after by another subsidiary of whom he was also one of the administrators, the *Société pour l'Exploitation d'Hôtels à l'Etranger, Genève* (SEHEG)"[229], founded to answer a demand of foreign governments for partners to build and manage first class hotels. Even thought, until 1954, Saugey was working mainly in Geneva, and it was only then that he started his international career with the construction of a hotel in Turkey.

Nevertheless, Saugey's international activities were not all linked to the SEHEG. He also "gathered several Swiss investors to the development of real estate operations in Spain (Giverola), Iraq (Brasserie and Bagdad) and Libanon (Beirut)"[230]. Furthermore, he participated in the creation of the Society Europlan, in 1967 (dissolved in 1969), whose headquarters where located in Geneva.

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223 "Rien apparemment ne prédisposait Saugey à devenir un architecte international, (...) Il parlait que le français et ses premières expériences étrabgères, (...), eurent lieu pendant la guerre, en France, sur la Côte d'Azur et surtout à Lyon. Elle ne lui valurent que la difficulté d'être payé et aucune reconnaissance." in Armand Brulhart (1991) - op. cit., p.11.

224 "(…), avec l'Hôtel du Rhône que se situe le point de départ de sa carrière internationale." in Bernard Cintas, "L'architect international" in Giairo Daghini (dir.) – op. cit., p.16.

225 "(…), de conquérir les marches étrangers." in Armand Brulhart (1991) - op. cit., p.11.

226 "(…), une série de voyages d'études, une veritable spécialité dans la construction hôtelière." in Idem.

227 "(…), qu'à partir de ces deux bases se tramèrent plus de la moitié des affaires du bureau, (...)" in Ibidem.

228 "(…), «exporter» une combinaison de compétences financières et architecturales sous une figure d'architecte international spécialisé dans les programmes hôteliers." in Bernard Cintas – op. cit., p.16.

229 "Dès 1948, Saugey entreprend une serie de voyages d'études et de prospection hôtelières pour le compte de la Société d'Exploitation de l'Hôtel du Rhône (SEHR) d'abord, puis pour une filiale dont il est également administrateur, la Société pour l'Exploitation d'Hôtels à l'Etranger, Genève (SEHEG)." in Idem.

230 "(…), arrive de réunir divers actionnaires suisses pour des opérations de promotion immobiliaire en Espagne (Giverola), en Iraq (Brasserie de Bagdad) et au Liban (...), Beyrouth." in Ibidem.

This society was founded by six European architects and "provided services specialised in the management of programmes, either of urban-planning, architecture or construction"[231]. Its activity was focused in Western Europe and the Mediterranean, being after extended to Africa, Middle East and America. In 1968, Saugey was responsible for four of its dossiers (non-realised projects): "URBANOVA, a project for a new city of 60 000 inhabitants located in the municipalities of Vich, Gland and Coinsin, between Geneva and Lausanne; three projects of holiday villages in Spain, in Plas (Costa Brava), Marbella and Estepona (Costa del Sol)"[232].

Between 1940 and 1971, Saugey's office developed about forty projects for foreign countries: hotels, holiday villages, villas and administrative buildings.

Regarding hotels, two types were designed by Saugey: "first class hotels, in an urban environment, for business clients (Ankara, Bagdad, Beirut, London, Cannes, Paris, Istanbul, Marrakech, Brussels) and hotels linked to touristic activities (Giverola, Algarve, Cefalù, Casares, Olbia)"[233]. From all these projects, only three were built: The Grand Hotel Ankara, the Hotel Manhattan in Casares (Costa del Sol) and the *Hotel du Rhône* in Brussels[234].

Saugey also projected numerous holiday villages for Spain, where he was one of the first prospectors (since 1851) to equip the coast tourism infrastructures. The project of *Giverola* was his first Spanish commission actually built. After this first project, he built two administrative buildings in Barcelona (1960 and 1961), the second, was the local headquarters for the insurance company *Winterthur*.

He "also participated in other competitions (all under invitation): *Radio-Liban* in Beirut (1955, first place, not done), a hotel in Istanbul (1960, third place), an administrative centre in Madrid (1966, didn't win), the Swiss pavilion for the universal exhibition in Osaka (1967) and the Swiss embassy in Canberra (1969)"[235].

While Saugey travelled and negotiated, a team of projectors worked to translate into drawings is own ideas.

In conclusion, it is possible to state that Saugey was a truly exporter of the Swiss architecture.

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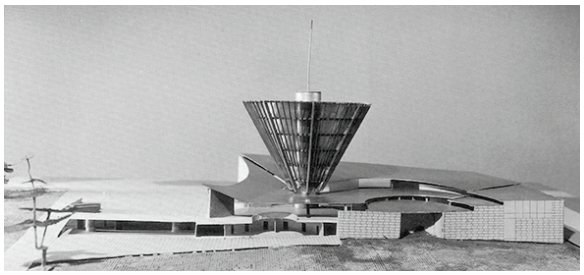
231 "(…), prestataire de services spécialisé dans la gestions de programmes, qu'il s'agisse d'urbanisme, d'architecture ou de construction." in Ibidem.

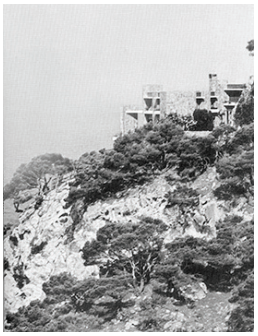
232 "(…), URBANOVA, un projet de ville nouvelle de 60 000 habitants située sur les communes de Vich, Gland, et Coinsin, à mi-chemin entre Lausanne et Genève; et trois projets de villages de vacances en Espagne, à Pals (Costa Brava), Marbella et Estepona (Costa del Sol)" in Ibidem.

233 "(…), des hotels de première catégorie en site urbain réservé à une clientèle d'affaires (Ankara, Bagdad, Beyrouth, Londres, Cannes, Paris, Istanbul, Marrakech, Bruxelles), et des hôtels liés à des activités essentiellement touristiques (Giverola, Algarve, Cefalù, Casares, Olbia)." in Ibidem.

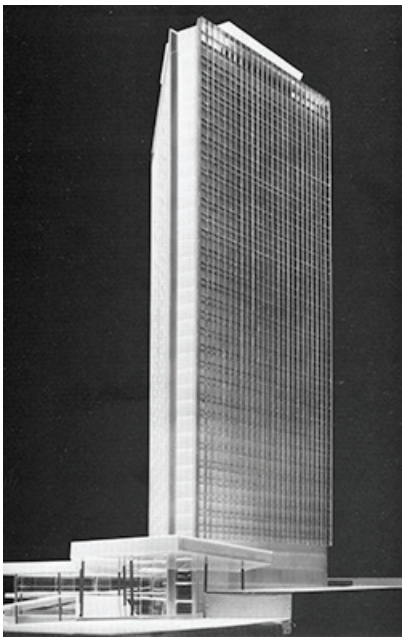
234 Cf. Ibidem.

235 "(...), participe également à d'autres concours (tous sur invitation) : Radio-Liban à Beyrouth (1955, premier prix non exécuté), un hôtel à Istambul (1960, troisième prix), un centre administratif à Madrid (1966, non primé), le pavillon suisse pour l'exposition universelle d'Osaka (1967), et l'ambassade suisse à Camberra (1969)." in Ibidem.





086. 087. 088. Marc J. Saugey, *Radio Liban*, Beirut, Lebanon (1959). Competition model; *Winterthur Assurances*, Barcelona, Spain (1966-1969); villa *Giverola*, Costa Brava, Spain (aprox. 1970) .



089. Marc J. Saugey, *Hôtel Ankara*, Turkey (1954-1965). Project realised.

02.2.7 The 1960s: the teacher and the urban-planner

Saugey taught at the School of Architecture of Geneva, for ten years, between 1961 and 1970.

A decree of the State Council appointed him as Professor-chief of the studio of urban-planning, on February 21th 1961. His choice was claimed by students, who were fascinated with his works and were critics of the academician and *beaux-art* orientation of the school.[236] Recognising "the spatial wealth and the social consonance of organic architecture"[237], disseminated trough the works of Frank Lloyd Wright and Alvar Aalto and the writings of Bruno Zevi, Siegfried Giedion and Lewis Mumford, as well as, the new materials and techniques that the industry was developing, they wanted the school curriculum to be adapted to these new times.

Besides being responsible for the studio of urban-planning, opened to first and second year students, he was also appointed for directing the first year workshop of architecture, on October 21th 1966, following the death of the Professor Albert Cingria.

For his students, "he was a master who radiated optimism and confidence"[238] and, even tough, sometimes absent in business trips, when we came back, he described to his students all the works he had visited, sharing with them his vision of the world, future-oriented, and full of mobility and speed. Therefore, his presence, "rare and stimulant, had a strong influence on the students"[239].

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236 Cf. Denis Dubois-Ferrière - "L'appel des étudiants" in Giairo Daghini (dir.) – op. cit., p.15.

237 "(…), les richesses spatiales et les consonnances sociales de l'architecture organique, (...)" in Idem, p.15.

238 "(…), c'était un maître don't rayonnait l'optimisme et l'enthousiasme." in Ibidem.

239 "Sa presence rare et stimulant a fortement impression les étudiants." in Armand Brulhart (1991) – op. cit., p.12.

The architecture programmes he proposed to his students reflected the actual needs and were related to "activities and generators of intense animation: a trade agency, a hotel for businessmen, a permanent structure for temporary exhibitions, a cardiology centre."[240] In the field of urban-planning, he suggested themes that were being discussed in Geneva at the time, as "structuring the Geneva-Lausanne axis, a mobility-corridor between the two shores of the lake and food production in *Céligny*"[241]. Nevertheless, students could always suggest changes and improvements to each programme.

When teaching, Saugey intervened as if he was to "emerge a project of his own office"[242]. However, he stressed the importance of studying the site, comparable examples, as well as technical innovations, before starting the work. After that, he fuelled each student research in his own way, respecting his idea, once "all were worth to be explored"[243]. Therefore, in the end of the semester, he would have "as many solutions as students"[244].

In the final critics, he "explained and sustained each project with a conviction and a force of persuasion which brought the attention of the other members"[245], also supporting that "students should be allowed to defend their ideas in front of the jury"[246]. For him, it was important to promote the ideas and all forms of communication should be used.

Saugey became interested in urban-planning very early in his career. His involvement dates back to 1932, when we became member of the GANG. Moreover, it can be also testified in some drawings of his urban vision of Geneva, dating from 1933 and 1937, as well as by his participation in the CIAM study of the "functional city".

Nevertheless, it was only in 1945, when he was appointed to integrate the study commission for the development of Geneva, by the *Département de travaux publiques*, his official urban-planner career started. Within this commission, he belong to a group of five architects also known as the *Groupe des cinq*, with whom he participated in the elaboration of the Report of 1948, as well as in the great projects of the post-War, including "the competition of 1954 for the enlargement of the *Mont-Blanc* bridge, (…), and the amelioration of the route connection between the two shores of the lake"[247]. Anyhow, in the 1950s his attention was focused in the renovation of *Saint-Gervais,* were he had several commissions.

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240 "(…), des activité et générateurs d'animation intense: une agence de cambistes, un hôtel pour hommes d'affaires, une structure permanente d'expositions temporaires, un centre de cardiologie." in Denis Dubois-Ferrière- op. cit., p.15.

241 "(…), la structuration de l'axe Genève-Lausanne, les alternatives un couloir de mobilité entre les deux rives du lac, la production agro-alimentaire à Céligny." in Idem.

242 "(…), émerger un projet de son proper bureau." in Ibidem.

243 "Toutes valaient la peine d'être explores." in Ibidem.

244 "(…), autant de solutions que d'élèves." in Ibidem.

245 "(…), expliquait et soutenait chaque projet avec une conviction et une force de persuasion qui entraînait l'adhésion des membres." in Ibidem.

246 "(...), l'étudiant puisse défedre son travail devant le jury, (...)" in Ibidem.

247 "(...) concour d'idées de 1954, pour l'élargissement du pont du Mont-Blanc, (...)" in Catherine Courtiau (2007) – op. cit., p.86.

In 1957, Saugey collaborated in the elaboration of the *Rapport de la Commission du plan directeur de Genève*, promoted by the INTERASSAR, group of which he was member. Furthermore, in 1960, he also participated in the project of the group URBAT for Geneva.

Nonetheless, it was only in 1961 that Saugey was again elected to the urban-planning commission. This time, he was appointed vice-president of the *Comission d'urbanisme,* and, simultaneously, the director of its first study office, independent from the *Département de travaux publiques,* until 1965. Even after the integration of the urban-planning commission again in the cantonal administration, and the destitution of the study office, Saugey keep his position of vice-president, until his death in 1971.

Despite other architects that also belonged to the study office, "Saugey had acquired a supplementary dimension, and above all had the means to exercise an unparalleled influence in the political and professional world"[248]. Although he never had political ambitions, his election as a deputy to the Great Council, between 1951 and 1954, was a proof of his undeniable know-how to profit from the positions he held, as well as the contacts he established.[249] Furthermore, the fact tat he joined "to his work as an architect a real estate activity"[250], gave him a "particular perspicacity in the field of urban-planning"[251] being, therefore, more capable to "conceiving the direct financial consequences of the master plans"[252]. In addition, his nomination as a teacher at the School of architecture also augmented his credibility. Therefore, within this study office, Saugey was "the most prominent personality"[253] being both "accomplice of the new generations, […], and respected by his own generation, some of whom occupied important positions"[254].

Nonetheless, Saugey's work "was most notorious in the discussions of the group, rather than on the plenary commissions, where options and decisions were made"[255] .The investigations he conducted were mainly focused on the study of an alveolar plan, and its principal objective was to structure the city with express-roads, based on this concept. Nevertheless, they also continued the densification of the territory, not only by enlarging the perimeter of the city but also by the densification of the city-centre, inspired by Saugey's «mix» projects.

His career as an urban-planner finished with "the study report that had as objective planning the development of the area destined to international activities (ZADAI)"[256]. However, this command of

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248 "(…), Saugey avait acquis une dimension supplémentaire et surtout s'était donné les moyens d'exercer pratiquement une influence sans égale, à la fois sur le monde politique et, (...) profissionnel." in Jean-Marc Lamunière - "Startégie et project d'un architecte urbaniste" in Giairo Daghini (dir.) – op. cit., p.18.

249 Cf. Idem, p.19.

250 "(…), à son travail d'architecte une activité immobilière, (...)" in Ibidem.

251 "(…), une particulière perspicacité dans le domaine de l'urbanisme" in Ibidem.

252 "(…), à concevoir les conséquences financières directes des plans directeurs." in Ibidem.

253 "(...), la personnalité la plus proéminent, (...)" in Ibidem.

254 "(…), complice de nouvelles générations, (...), et respecté au sein de sa propre génération dont certains occupent des positions importantes, (...)" in Ibidem.

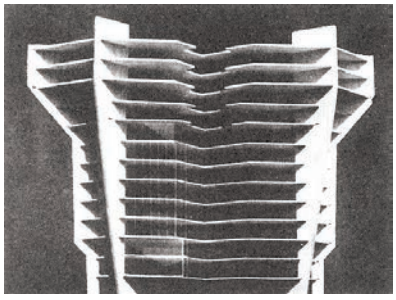
255 "(…), se repère principalement dans les procès-verbaux du groupe des cinq, bien plus que dans ceux des commissions plénières d'urbanisme, celles-ci enregistrant les options et les décisions." in Ibidem, p.20.

256 "(…), le rapport d'étude qui avait pour but de dégager les conceptions directrices de l'aménagement de la zone à destination des activités internationales (ZADAI)" in Catherine Courtiau (2007) - op. cit., p.86.

the *Département de travaux publiques*, developed in collaboration with the traffic engineer Jacques Richter, was only presented in February 1971, two months after Saugey's death.
Still, Saugey left "his vision of the future, that we always knew how to conceive and present"[257], as well as the memory of "his energy [that] marked the territory: [where] there are still records of his lively concepts, as well as, important traces of his passage"[258].

The sixties were the decade Saugey devoted to urban-planning. Therefore, in the architecture works he projected and built, in this same period, it is impossible to "find the same inventiveness as in the decade that preceded it"[259].
During these years, Saugey's structural thinking changed again and his interest moved to "the form of the load-bearing structures, [which he wished to make] more recognizable, more organic, abandoning the rigour of the frame for the benefit of a structural expressionism"[260]. Examples of this research are the building *La Tourelle* (1956-1961,) the two commercial buildings *61 rue du Rhône* (1966) and *54 quai Gustave-Ador* (1968-1971), as well as, the non-realised *Tour Freyssinet* for *Cointrin*.

090. 091. Marc J. Saugey, *La Tourelle* (1956-1961).



092. Marc J. Saugey, *Tour Freyssinet, Cointrin* (1969-1970).

In 1957, Saugey was admitted to the *Fédération des Architects Suisse* (FAS.), becoming the president of the Geneva section, the following year, position he kept until 1964. During his presidency he was charged of the organisation of the National Exhibition of 1964, in Lausanne, where he was responsible for the design of the port-sector.
In his last work, the *Grand-Casino* (1970), unfinished because of his death, both the organic structure and the circulations, distributed by a central helicoidal ramp that links the commercial and recreational parts of the building, made it appear as an obvious reference to Frank Lloyd Wright and his Guggenheim Museum (1956-1959)[261].

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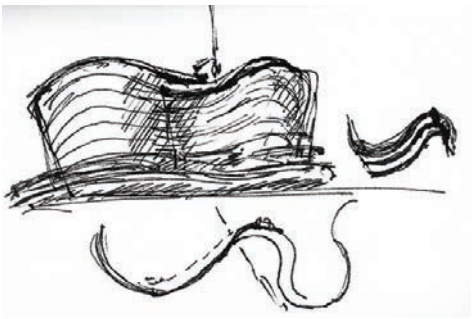
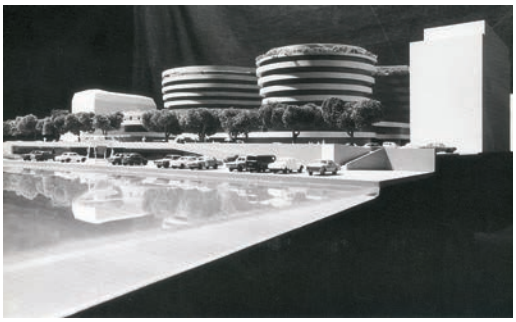
257 "(...), cette «vision de l'avenir» qu'il a toujours su concevoir et présenter." in Jean-Marc Lamunière (1991) – op. cit., p.22.
258 " son énergie a marqué le territoire, où il ya encore des registres de ses concepts animés, ainsi que, d'importantes traces de son passage " in Idem.
259 "(…), trouver la même inventivité que dans la décennie précédent, (...)" in Armand Brulhart (1991) – op. cit., p.12.
260 "(…), la forms des structures porteuses, (...), plus reconnaissable, (...), plus organiques, (...)" in Philippe Meier – op. cit., p.13.
261 Cf. Armand Brulhart (1991) – op. cit., p.12.



093. Marc J. Saugey, *Grand Casino*, Geneva (1970-1971).



094. Marc J. Saugey, *Grand Casino*, Geneva (1970-1971).

After September 1970, sick, Saugey did not go again to his office and left most of his functions, dying some months later, on January 7th 1971.

"Included within the actors-creators and (re)constructors of the post-War"[262], Saugey knew how to leave his mark in Geneva, with his avant-garde buildings of the 1950s, as well as to "distinguish himself, by his structural researches and new techniques"[263], and in the 1960s by his active engagement in the urban-planning of the city.

For him, "architecture should be above all «anticipation»"[264]. Nonetheless, he did not seek at all costs the perfection of the finished object. His buildings, with all the qualities mentioned, "have as a corollary the invention of the moment, (…), the quality of the spaces he built and the sensitivity to the materials used"[265].

In the last two decades, "the reflexion on the heritage, part of a very recent preoccupation for the conservation of the architectural heritage of the 1950s"[266], revealed once more Saugey's work. Even though two of his major works were demolished, the *Cité-Confédération* (1952-1954) and the *Gare-Centre* (1954-1957), the demolition of the cinema *Le Paris* was stopped and, recently, some of Saugey's building are being objects of protection measures and rehabilitation interventions.[267] The most remarkable case is the case study of this dissertation: the *Miremont-le-Crêt*.

262 "Inclu dans les acteurs-créateurs et (re)constructeurs de l'après-guerre." in Catherine Courtiau (2007) - op. cit., p.18.

263 "(...), s'a distingué par ses recherches structurelles et de techniques nouvelles, (...)" in Idem.

264 "(...), l'architecture doit être avant tout «l'anticipation», (...)" in Armand Brulhart (1991) – op. cit., p.11.

265 "avoir pour corollaire l'invention du moment, (...), la qualité des espaces qu'il construit et la sensibilité aux matériaux utilisés" in Philippe Meier – op. cit., p.22.

266 "(…), la reflexion patrimoniale qui, dans une préocupation très récente de conservation des biens des années cinquante, (...)" in Idem, p.9.

267 Cf. Ibidem.

MIREMONT-LE-CRÊT: CASE STUDY 03

03.1 The apartment building *Miremont-le-Crêt*: from project and construction (1953-1957) to heritage (2002)

"*Miremont-le-Crêt is a remarkable building in the history of housing, far beyond the context of Geneva*."[1]

03.1.1 Situation: the district of *Champel* – "the Geneva urban standing"[2]

The housing building *Miremont-le-Crêt* is located in the Geneva district of *Champel*, more precisely in its Southwestern area, between the streets of *avenue de Miremont* and *avenue de Calas*, in a neighbourhood exclusively composed of parallel housing blocks.

095. Overview of the apartment building *Miremont-le-Crêt* shortly after construction. Photo Klemm.

1 "(...), Miremont-le-Crêt est un bâtiment remarcable dans l'histoire du logement bien au-delà du contexte genevois." in Catherine Dumont d'Ayot - "Miremont-le-Crêt: le manifeste de «l'espace habitable»" in Pierre Baertschi (dir.) – op. cit., p.29.

2 "(...), le standing urbain genevois, (...)" in AL; EB - "Champel-Florissant-Malagnou, le standing urbain genevois" in Catherine Courtiau (2009) – op. cit., p.87.

The contemporary neighbourhood of *Champel* is located upon the plateau of *Malagnou* and *Champel*, which rises between lake *Léman* and the river *Arve*, extending itself towards the South limit of the city.

In the urban context of Geneva, *Champel* stands as "an excellent example of the development of the bordering areas of the city"[3], where, during the 20th century, the existent "*villas* and scattered properties were replaced, (…), by a district organized in parallel blocks, in a large-scale system"[4]. However, unlike other sectors of Geneva, *Champel* knew how to maintain its bourgeois character during its transformation process.

Although its first records of inhabitants date back to the Roman occupation, "attested [both] by several fragmentary discoveries, but also by a network of roads connecting to, (…), the city: *route de Malagnou*, *route de Florissant* and *chemin de Crête de Champel*"[5], the plateau was subsequently abandoned, in the end of the 3rd century, when the invasions forced the entrenchment of the city.

Part of "the parish of *Saint-Victor*, whose convent was then installed in the actual *Tranchées* neighbourhood"[6], the Reform of 1536 reinforced its isolation from Geneva, until the middle of the 18th century. Then, its dominant location "engaged the citizens of the city to, (…), built there their domains, [conferring it] the appearance of a mastered campaign, punctuated by mansions with their addictions, pleasure gardens, avenues of trees, ponds, orchards and vineyards"[7].

Regardless these first occupation evidences, the present urban development of this former peripheral area of Geneva only began after the dismantling of the city defensive walls, in 1850. At the time, three urban morphologies characterized this part of the city: closer to the city-centre "the [neoclassical] buildings of the neighbourhood of *Tranchées*, (…), [then] the adjoining houses, and finally, a large extension of houses and properties on the former municipalities of *Eaux-Vives* and *Plainpalais*"[8].

Modern urban development was achieved with the implementation of "the grid network of *Tranchées*, (…), [to] the entire plateau"[9]. However, in the first decades of the 20th century, it resulted in the construction of some enclosed housing blocks, still strongly inspired by the urban planning designs of the 19th century. From 1930, *Champel-Malagnou* became "a privileged area of Modern town

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3 "(...), un excellent exemple du développement des zones limitrophes de la ville, (...)" in Idem.

4 "(...), des villas et propriétés éparses son remplacées, (...), par un quartier organisé en barres et un système à grande échelle." in Ibidem.

5 "(...) est attestée par plusieurs découvertes fragmentaires, (...), mais aussi par un résseau de voies qui toutes aboutissaient au coeur de la ville, (...), la route de Malagnou, la route de Florissant et le chemin de crête de Champel, (...)" in Armand Bruhlart; Erica Deuber-Pauli – "Les quartiers de Genève" in Armand Bruhlart; Erica Deuber-Pauli - *Arts et monuments, Ville et canton de Genève*, Genève: Georg Éditeur, 1985, p.165.

6 "(…), la paroisse de Saint-Victor, le couvent installé dans l'actuel quartier de Tranchées." in Idem, p.167.

7 "(…), engagea les bourgeois de la ville, (...), à y former des domaines. (...), l'aspect d'une champagne maîtrisée, ponctuée de maisons de maître avec leurs dépendances, jardins d'agrément, allées d'arbres, carpières, vergers et vignes, (...)" in Ibidem.

8 "(…), les immeubles du quartier des Tranchées, d'autre part, au-delà, des maisons contiguës et, enfin, une grande étendue de villas et propriétés sur les anciennes communes des Eaux-Vives et Planpalais." in AL; EB - op. cit., p.87.

9 "(…), le reseau quadrille du quartier de Tranchées, (...), sur tout le plateau, (...)" in Armand Bruhlart; Erica Deuber-Pauli – op. cit., p.168.

planning with parallel block buildings in the middle of stretches of greenery"[10].

Nevertheless, the consolidation of the urban tissue of *Champel* was only achieved in 1952 with the *Plans d'aménagement Marais*, elaborated with the purpose of compensating the demographic explosion of the city and its need of new dwellings. In order to "transform the zones of villas into urban development areas"[11] the *Marais* plans adopted the block as the architectural solution for the urbanisation of this district, largely inspired by the Modern theories and the post-War urban-planning schemes. Materialized in the creation of *Plans Localisés de Quartiers (PLQ)*, it resulted in the association of "the owners of the villas"[12] and the surrounding properties, who "joined their land and houses, [and together] gradually substituted it by collective housing buildings"[13].

From the late 1960s to the beginning of the 1990s, "the development of this sector was finalized with the construction of facilities and services – as (…) the *Cité Universitaire*, the *Migros* supermarket, schools and religious and cultural buildings"[14] – that granted the Geneva plateau its high standing appearance.

096. *Miremont*'s block in the city of Geneva.

10 "(…), une zone privilégiée de l'urbanisme moderne avec immeubles-barres au milieu d'étendues de verdure." in AL; EB - op. cit., p.87.

11 "(…), transformer les zones de villas en zones de développement urbain." in Idem.

12 "(…), les propriétaires de villas, (...)" in Ibidem.

13 "(...), joignirent leurs terrains et les villas, (...), progressivement substituées par des logements collectifs." in Ibidem.

14 "Le développement de ce secteur s'acheva par la construction d'équipements et de services, (...), la Cité universitaire, le supermarché Migros, des écoles et de l'ensemble des édifices religieux et culturels." in Ibidem.

03.1.2 The building: project and construction

"Upon the approach of the building Miremont-le-Crêt, one falls under the spell of the established dynamic between urbanism and architecture. Each architecture element, access, circulation, apartment depends of its own relation to the whole and its implantation, thus creating a unique dialectic."[15]

097. Entrance to the building *8 ABC avenue de Miremont.* Shops along the sidewalk. Photo Alain Grandchamp.

15 "Dès l'approche du bâtiment de Miremont-le-Crêt, on tombe sous le charme de la dynamique qui s'établit entre urbanisme et architecture. Chaque élément d'architecture, accès, circulation, appartement dépend de son rapport à l'ensemble et de son implantation, créant ainsi une dialectique propre." in Christoph Schmidt-Ginzkey - "Miremont-le-Crêt, 1953-1957.«L'espace habitable»" in Giairo Daghini (dir.) – op. cit., p.52.

03.1.2.1 Towards construction – entities, dates and legal procedures

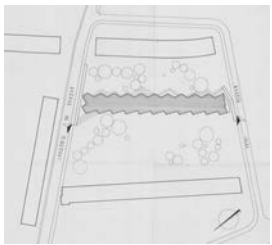
The apartment building *Miremont-le-Crêt* was conceived in the architecture office of Marc Joseph Saugey between 1953 and 1955, in close collaboration with the engineer Pierre Froidevaux, as well as the artists Edouard Nierlé (1916-2006) and Louis Bongard. Its construction took place from March 1956 to the Fall of 1957, therefore being achieved in less than two years.

098. Original cover of the brochure for the sale and rent of the apartments. (Archives IAUG, Fonds Saugey).

In fact, with a view to build *Miremont*, the investment society *SI Miremont A-B-C-D*, owner of the land, had already been establishing contacts with private investors since 1952. Consequently, the following year, the investment company *Foncipars* commissioned Saugey the project, which he began to develop within his office. In the same year, a priority request was submitted to the *Département des Travaux Publics* of Geneva, concerning the obtainment of a construction permit, which was granted in 1954. Thus, since November of this year, the full construction drawings were designed in Saugey's office and the project was completed in the end of 1955.

Starting in March 1956, the construction works were developed according to a site plan that forecasted the following phases: "the first fix works from October 1956, the second fix works from May 1957, the finishing works in June and July and the completion of the construction in the Fall of 1957"[16]. As a result of "the concept used in the assembly of the second fix elements and the rationalisation of the construction phases"[17], the construction of *Miremont-le-Crêt* was extremely fast, taking into account its dimensions and the technologies available at the time.

03.1.2.2 Implantation and composition of the building



099. Original site plan (Archives IAUG, Fonds Saugey).

Miremont is the result of several constrains as "the terrain, orientation and proximity to future neighbouring buildings, as well as the implantation imposed by existing neighbourhood plans"[18] that Saugey elegantly knew how to master, "lead[ing him on the] search for an entirely new solution for, (…), [a housing] block"[19].

Accordingly, due to Saugey's already existent qualities of an entrepreneur and his extensive knowledge of the real estate market and its promotion, he also aimed for the "optimisation of the legal constraints"[20] of the project, in order to "maximise the number of apartments per stairwell"[21]. The pursuit of the maximum profitability is a characteristic of all his works, regardless of the programme.

16 "(…), les travaux de maçonerie à partir d'octobre 1956, les travaux de second oeuvre dès mai 1957, les finition en juin et julliet et l'achèvement de la construction en automne 1957." in Idem.

17 "(…), le concept de montage du second oeuvre et de la rationalisation des phases de la construction, (...)" in Ibidem.

18 "(…), du terrain, l'orientation et la proximité des immeubles voisins futurs ainsi que l'implantation imposée par un plan de quartier existant, (...)" in Ibidem.

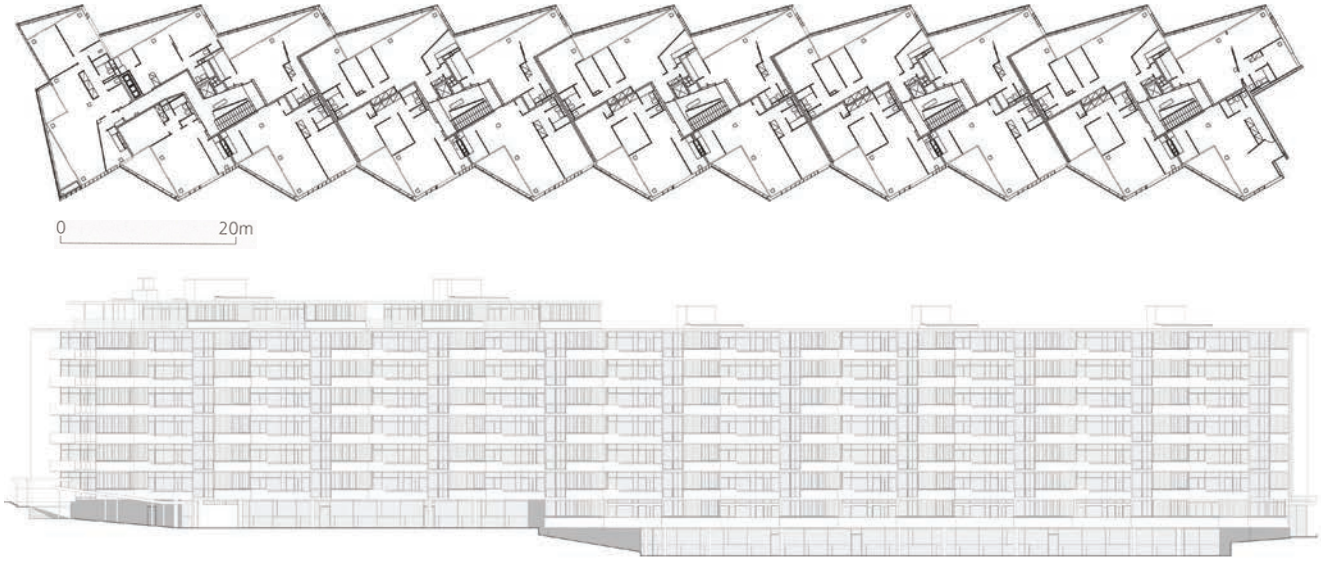
19 "(…), amènent, (...), à rechercher une solution entièrement nouvelle pour, (...), barre, (...)" in Ibidem.

20 "(…), optimisation des contraintes légales, (...)" in Philippe Meier – op. cit., p.40.

21 "(…), maximiser le nombre d'appartements par cage d'escalier, (...)" in Idem.

Thus, it had already been applied to housing, although in a different way, in the nearby residential complex *Malagnou-Parc* (1948-1952).[22]

In *Miremont*, Saugey "sink[ed the building] into the ground to take advantage of a full six levels of housing"[23] though "adapt[ing it] to the natural morphology of the terrain that rises slightly in the South [side of the plot], break[ing] the building into two interrelated parts"[24]. This partition was accomplished, assuring the horizontal continuity in every floor.



100. 101. Type floor plan. Southeast elevation.

In addition, having the entrance halls beneath the street level allowed Saugey "to give the ground floor [apartments] the same habitability as the upper-floors"[25]. Indeed, he knew how to transform this *a priori* unpleasant artifice into a "true architectural *promenade*"[26].

The same topographical subdivision could also be found in the morphology of the building. In fact, Saugey profited from the break in the terrain to decompose the apartment building into two parts: the side *Miremont*, which comprises the entries A, B and C (with the address: *8 A-B-C avenue de Miremont*), and the side *Calas*, where the entries D and E are located (whose address is: *5-7 avenue de Calas*).

102. The two sides of the building and their different entries.

While on the side *Miremont*, the lower entrance hall "allows the building to gain another floor of apartments"[27], the slope of the terrain, on the side *Calas*, kept it from being designed the same way. Thereby, Saugey used there another device to enrich the morphology of the building – the addition

22 Cf. p.66.

23 "(…), s'enforcer dans le terrain pour bénéficier de six niveaux complets de logements, (...)" in Philippe Meier – op. cit., p.40.

24 "(…), s'adapter à la morphologie du terrain naturel qui monte légèrement vers le sud pour «décrocher» l'immeuble en deux paliers interdépendants, (...)" in Idem.

25 "(...), donner au rez-de-chaussée la même habitabilité qu'aux étages, (...)" in CB - "Miremont-le-Crêt" in Catherine Courtiau (2009) – op. cit., p.107.

26 "(...), une vraie promenade architecturale." in Idem.

27 "(…), permet à l'immeuble de gagner un étage d'appartements." in Christoph Schmidt-Ginzkey – op. cit., p.52.

of an attic-floor.

The result was a building with a length of 126 meters, composed of 139 one-floor apartments, distributed along 5 unities (entrances A, B,C, D and E), with 7 floors on the side *Miremont* and 6 floors (plus an attic) on the side *Calas*, ranging from studios to 3 bedroom apartments. Furthermore, in the side *Miremont* there are two small shops, oriented towards the street, and on its level.

103. View of the "interior street". Southeast façade. Photo Klemm.

104. View of the Northwest façade.

03.1.2.3 The accesses and the *promenades* created

"The immediate surroundings of the building, the entrance, the halls, already belong to this [«habitable space»][28] and should contribute to provoke the suitable and desired reactions. The often too narrow entrance, must thus be replaced, (…), by ample halls, connected to nature, being able to constitute pleasant interior promenades*, even in days of bad weather. The vertical stairwells should [also] extend this atmosphere."*[29]

Distinct from its neighbour buildings, *Miremont-le-Crêt* does not present the service road, perpendicular to the surrounding streets, which allows access to cars and entry to the buildings.

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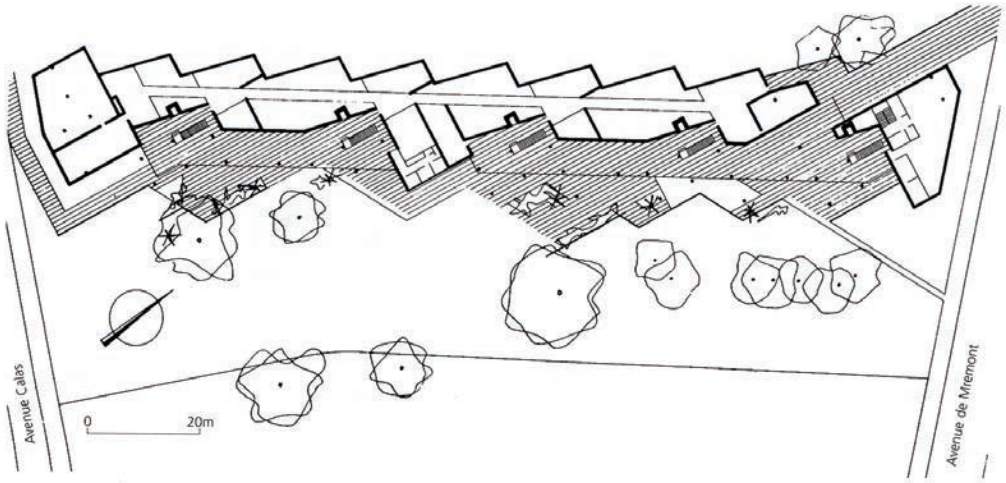
28 "L'espace habitable" - designation used by Saugey in Marc-J. Saugey – "L'espace habitable, Miremont-le-Crêt", *Architecture, Formes et Fonctions*, nº. 8, Lausanne: Édition Anthony Krafft ,1961, pp. 77-82.

29 "Les abords immédiats du bâtiment, l'entrée, les halles, appartiennent déjà à cet espace et doivent contribuer à dégager des reactions propices et souhaites. Il faut donc substituter à l'entrée trop souvent étriquée, (...), des halls amples, liés à la nature, pouvant même par les jours de mauvais temps constituer des promenades intérieurs aux visions agréables. Les cheminments d'accés verticaux aux appartements devront prolonger cette ambiance." in Marc-J. Saugey – op. cit., p.80.

The existent accesses are pedestrian and located on both sides of the volume, in the gable-end façades, on the nearby roads: *avenue de Miremont* and *avenue de Calas*. This astute solution helps to preserve the quiet and privacy of the garden.



105. Ground floor plan. This plan published by Saugey ignores the differences in level between the sides *Calas* and *Miremont*.

The pedestrian accesses were designed to include the surroundings of the building, being thought as a "continuous system that collects the inhabitant on the street and then conducts him to his apartment"[30]. Therefore, on both sides of the building, breezeways superimposed on the sidewalks and made of "thin concrete slabs over poles of blue round tubes"[31] drive the inhabitants to the ramps (which they also cover), leading them to the respective entrance hall. The two halls are open towards the garden that was conceived as an interior street, serving as a "passage between the *avenue de Miremont* and the *avenue de Calas*"[32]. On the side *Miremont*, the breezeway parallel to the street has also the function of leading pedestrians to the shops. A third breezeway had also been projected to cover the exterior passage between the two halls, however it was never built.[33]

As a result, the interior street helps to design, downwards, a place where "the views and the pathways cross each other, establishing a succession of transitions from public to private space"[34], in other words, "serv[ing] as connection between the exterior – the city – and the interior – the individual cellule or apartment"[35].

30 "un système continu qui prend l'habitant sur la rue et le conduit jusqu'à son appartement, (...)" in Catherine Dumont d'Ayot (2000) – op. cit., p.32.

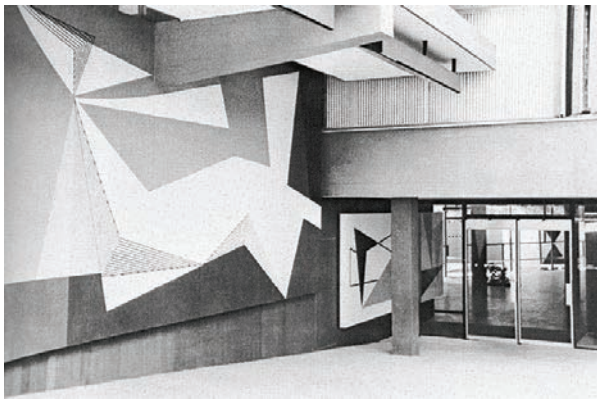
31 "Dalles fines sur des poteaux de tube rond, (...)" in Christoph Schmidt-Ginzkey - op. cit., p.52.

32 "(...), espace de passage entre l'avenue de Miremont et le chemin Callas." in Idem.

33 Cf. Patrick Devanthéry; Inès Lamunière – "Sauvegarde Miremont-le-Crêt? " in Pierre Baertschi (dir.) – op. cit., p.20.

34 "(...), les vues et les parcours se croisent, établissant une succession de transitions de l'espace public à l'espace privé." in Christoph Schmidt-Ginzkey – op. cit., p.52.

35 "(...), sert de médiation entre l'extérieur, la ville, et l'intérieur, la cellule individuelle." in Catherine Dumont d'Ayot (2000) – op. cit., p.33.



106. 107. Access ramp from the *avenue de Miremont,* with a painting from Edouard Nierlé. Breezeway over the access ramp to the *5-7 avenue de Calas.* Photo Desjardins.

108. 109. View from the *avenue de Miremont*. Access ramp from the *avenue de Calas*. Photos Saugey.

The embankment of the building on its exterior limits, liberates "the wall [between the hall and the garden], (…), [which is substituted] by a system of *pilotis*"[36]. Therefore, the transparency achieved by completely glazed façades, allow the permanent contact between the building and its "exterior elements, natural or built"[37].

This relation is emphasized with the implementation of "natural and psychological"[38] elements of connection, as "the presence of circles and stripes of vegetation"[39] in parts of the interior flooring of the hall, "extending the outside to the inside"[40] of the building. Or also by the presence of a water basin, placed outside the *Miremont* hall, reflecting the sunlight on its ceiling.

On the other hand, "a wall is detached from the building to receive a fresco from Louis Bongard"[41], thus being another example of Saugey's "desire to create continuity between interior and exterior"[42].

36 "(...), le paroi (est libérée) par un système de pilotis." in Christoph Schmidt-Ginzkey – op. cit., p.52.

37 "(...), éléments extérieurs, naturels et bâtis." in Marc-J. Saugey – op. cit., p.77.

38 "(...), naturels et psychiques, (...)" in Idem.

39 "La présence, (...), de cercles ou de bandes de végétation, (...)" in Patrick Devanthéry; Inès Lamunière – op. cit., p.20.

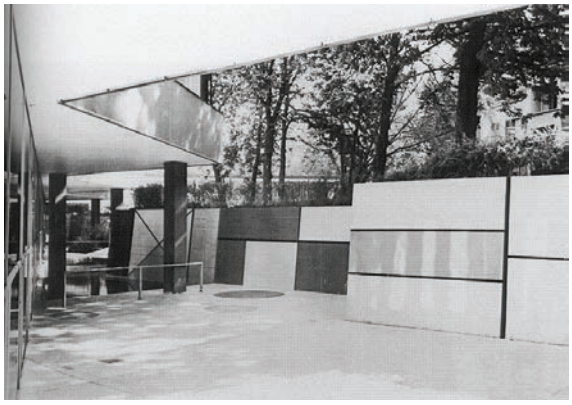
40 "(...), prolongeant l'extérieur à l'intérieur, (...)" in Idem.

41 "(...), un mur se détache du bâtiment pour recevoir la fresque de Louis Bongard." in Christoph Schmidt-Ginzkey – op. cit., p.52.

42 "(...), cette volonté (de Saugey) de créer la continuité entre intérieur et extérieur." in Patrick Devanthéry; Inès Lamunière – op. cit., p.20.

This zigzag retaining-wall also “gives a big openness to the garden”[43].
In another perspective, “the staircase[s] rhythm and articulate the linear hall”[44], therefore constituting diagonal elements that “come from the top and [contrast] with the horizontality of the interior street”[45].

Inspired by Le Corbusier that “proposes the concept of an “interior street” at different levels of his *unité d’habitation*, Saugey uses it on the ground floor, as a collector of the different entries to the vertical stairwells of each building, giving it an urban character”[46]. It can also be found here the “themes of the pathways and of the collective that are going to be developed later by Team Ten”[47].



110. Mural painting from Louis Bongard on the wall delimiting the garden (side *Miremont*). Water basin. Photo klemm.

111. Hall, side *Miremont*. Photo Saugey.

03.1.2.4 The apartments

Saugey proposed a floor-plan of four non-traverse apartments per vertical stairwell, each of them with a private balcony. The result is a considerably deep building, with “15,75m on average and 17,50m with the balconies”[48]. Although with variations in the apartments of the gable-end façades, the type-plan includes two studios, a 2 bedroom apartment and a 3 bedroom apartment.

The plan organised according to a frame of 60º (instead of a 90º one), results in the “increase in 40% of the surface of the façade”[49], allowing each apartment to benefit from a double exposure – “looking East and West towards the depth of the garden”[50]. Therefore, the apartments have a

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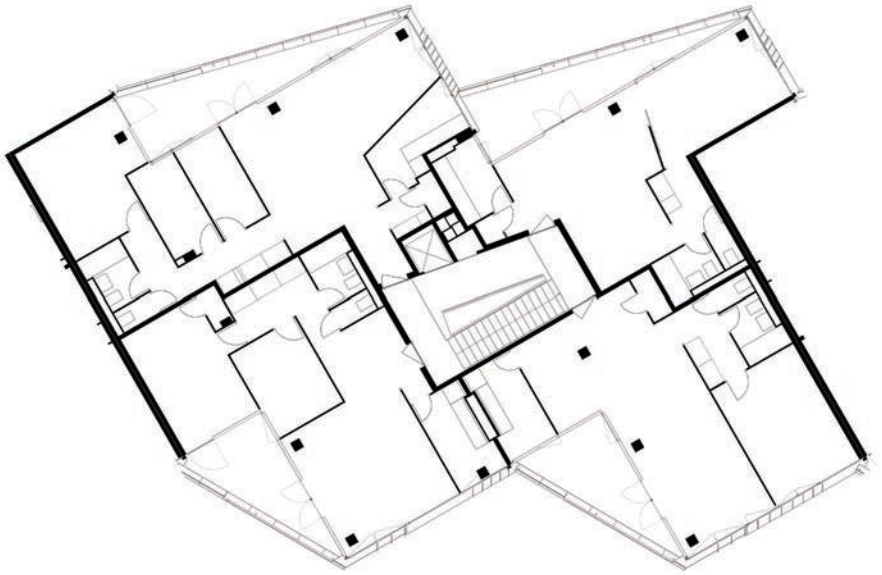
43 “(...), donne une grande ouverture sur le jardin.” in Christoph Schmidt-Ginzkey – op. cit., p.52.
44 “Les escaliers rythment et articulent le hall linéaire, (...)” in Idem.
45 “(...), arrivant depuis le haut et l’horizontale de la rue intérieur.” in Ibidem.
46 “(...), le concept de la «rue intérieur» à différents étages de son unité d’habitation, Saugey l’utilise au rez-de-chaussée comme collecteur des différentes entrées aux distributions verticales de chaque immeuble, lui conférant un caractère urbain.” in Ibidem.
47 “(...), les thèmes du parcours et du collectif qui seront dévelopés plus tard par le Team Ten.” in Catherine Dumont d’Ayot (2000) – op. cit., p.33.
48 “(...), en moyenne 15,75 m, 17,50 m avec les balcons.” in Idem, p.31.
49 “(...), un accroissement de 40% de la surface de la façade, (...)” in Ibidem.
50 “(...), regarde à l’est comme à l’ouest, la profondeur du jardin.” in CB – op. cit., p.107

"sunshine [exposition] of longer duration"[51], are "better enlightened than traverse apartments and the shadowed central area is avoided"[52]. This dynamic is accentuated by the fact that "each apartment has a Z section of the façade"[53], meaning three façade segments. Hence, when entering each one of them, the "look is drawn to the [multiple] perspectives, the different views and lightnings"[54], starting with the exterior balcony, then moving to "the glazed-façade wall, where the look is guided by the *brise-soleils"*[55]*,* and finishing in "the pillar that articulates both faces of the volume"[56]. This multiplicity of points of view towards the exterior, grant these "collective housing cellules, (…), the qualities of a *villa*"[57].



112. Plan of the type apartments 1:250. Oleg Calame Architect.

With L, Z or T shapes – the apartments were projected to have the three essential functions – identified by Saugey in his *l'espace habitable* – "social life", "services" and "private life", clearly defined "around the precise position of main and division walls"[58]. Their disposition should allow the circulation to be done in a lope, contributing to reinforce the feeling of *space* in every dwelling, thus accentuating the "notion of *villa dans l'espace*"[59].Therefore, the separation of the sections - "services"

51 "L'ensoleillement de plus longue durée, (...)" in Marc-J. Saugey – op. cit., p.81.

52 "(...), mieux éclairés que des logements traversants, la zone centrale sombre évitée." in Catherine Dumont d'Ayot (2000) – op. cit., p.31.

53 "(...), chaque appartement possède un tronçon de façade en Z, (...)" in Idem.

54 "Le regard est attiré par des perspectives, des vues et des luminosités, (...)" in Christoph Schmidt-Ginzkey – op. cit., p.54.

55 "la paroi vitrée d'où la vue est dirrigée par des «para-vues», (...)" in Idem.

56 "(...), le pilier à l'articulation des deux faces du volume." in Ibidem.

57 "(...), aux cellules du logement collectif (d'acquérir) les qualités (réputées être celles) de la villa." in Catherine Dumont d'Ayot (2000) – op. cit., p.31.

58 "(...), autour de la position précise des parois et des pans de murs." in Christoph Schmidt-Ginzkey – op. cit., p.54.

59 "(...), la notion de «villa dans l'espace», (...)" in Idem.

and “private” – is “simply conceived by enclosed volumes with the necessary amenities”[60], whereas “the free play of the division walls, separating the [different] functions, (…), advantageously replaces the enclosed spaces with doors”[61].

The fundamental element for the creation of these «*villa*» is the triangular balcony, result of the adoption of a 60º grid. With 7,50m² or 10m², depending on the apartments, this balcony is “the central piece around which a plan of great spatial fluidity is articulated”[62]. Moreover, as the element of transition between the interior and the exterior, it is “simultaneously protection and projection of the dwelling”[63]. Its triangular shape allows “the shifting of the seized distance between the window and the parapet”[64], as well as contributes to “the quality of the light entering the apartment”[65]. Thus, by offering a penetrating angle to each dwelling, it “provides it the ambience of a true *villa”*[66].
Besides, the diagonal orientation of the plan leads to the suppression of the *vis-à-vis*, once the distance to the nearby building is augmented. On the glazed-façade wall this effect is attained with the *brise-soleils* that “adjust the crossed views between the apartments”[67].

Miremont is Saugey’s invention of an *immeuble-villa*, where “each apartment plays the role of an individual *villa”*[68], and “the plastic effect of the ensemble, (…), breaks with the monotony of the parallel blocks of buildings”[69].

113. View of the balcony from the bedroom. Photo klemm.

114. View of the balcony from the living room. Photo klemm.

115. View of the model apartment. Photo klemm.

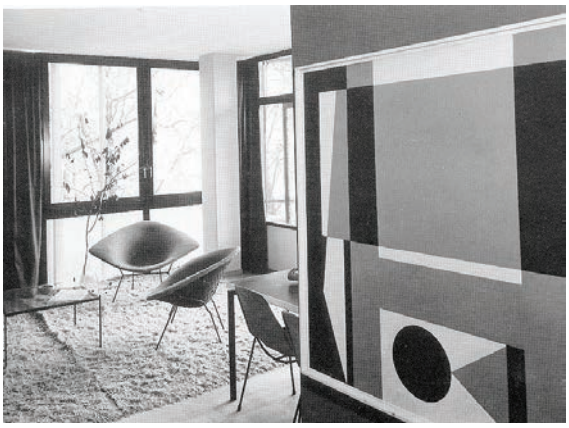
60 “(...), conçues simplement par volumes fermés avec les commodités nécessaires.” in Marc-J. Saugey – op. cit., p.80.
61 “Des jeux de parois séparant les fonctions dans ces espaces intérieurs, remplaceront avantageusement les locaux fermés avec portes.” in Idem, p.80.
62 “(...),la pièce central autour de laquelle s’articule un plan d’une grande fluidité spaciale.” in Catherine Dumont d’Ayot (2000) – op. cit., p.32.
63 “(...), simultanément protection et projection du logis.” in Christoph Schmidt-Ginzkey – op. cit., p.54.
64 “(...), de modifier le rapport de distance entre le vitrage et le garde-corps, (...)” in Idem.
65 “(...), la qualité de la lumière pénétrant dans le logis.” in Ibidem.
66 “(...), apporte, (...), l’ambiance d’une «vraie» villa.” in Ibidem.
67 “(...), (permettent de) régler la question des vues croisées entre les appartements.” in Catherine Dumont d’Ayot (2000) – op. cit., p.32.
68 “(...), chaque appartement joue le rôle d’une maison individuelle.” in CB – op. cit., p.107.
69 “L’effet plastique de l’ensemble, (...), rompant ainsi avec la monotonie des bandes d’imemubles parallèles.” in Christoph Schmidt-Ginzkey – op. cit., p.54.

03.1.2.5 The construction materials: "a construction poetic"[70]

"Even if the references are multiples and largely hybridized, the building acquires nevertheless a great coherence: from its typology to its constructive materialisation, the housing complex Miremont-le-Crêt shows a perfect conceptual continuity."[71]

The punctual load-bearing system used in *Miremont* is easily perceived in "the living room of the apartments, [highlighted] by the pillar – [positioned in the centre of the room] in full sunlight"[72]. These reinforced-concrete pillars (with a square base of 34cm) carry hollow-blocks concrete slabs with pre-tensioned «stahlton» beams (with a thickness of 19cm), supporting 7 floors, distancing 2,6m from each other. Although in the façade the pillars are detached from the walls, "in position[s] ruled by reasons of statics"[73], the "others disappear in the walls between the apartments and the vertical stairwell"[74].

116. View of the façade and its different elements and materials. Photo Saugey.



117. Structural pillar in the middle of the living room. Photo Klemm.

Regarding the second-fix elements, Saugey opted for their partially dry assembling[75], taking advantage of the knowledge obtained in former works. The rationalisation of the construction elements, implying the use of repetitive and simple details, is however beautifully mastered in *Miremont*, with the employment of a set of different and heterogeneous materials that highlight the spatial qualities of the building.

Slabs are covered with glass wool mats, felt mats, sand and parquet flooring. Below, a centimetre

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70 "une poétique de la construction" in Catherine Dumont d'Ayot (2000) – op. cit., p.32.

71 "Il faut noter que si les références sont multiples et largement hybridées, le bâtiment acquiert néanmoins une grande cohérence: de sa typologie à sa matérialisation constructive, l'immeuble de Miremont montre une parfaite continuité conceptuelle." in Idem.

72 "(...), le séjour de l'appartement par le pillier, (...), en pleine lumière, (...)" in Christoph Schmidt-Ginzkey – op. cit., p.54.

73 "L'emplacement, (...), réglé par des raisons de statique, (...)" in Idem, p.56.

74 "(...), d'autres disparaissent dans les murs entre les appartements et dans le noyau de circulation verticale." in Ibidem.

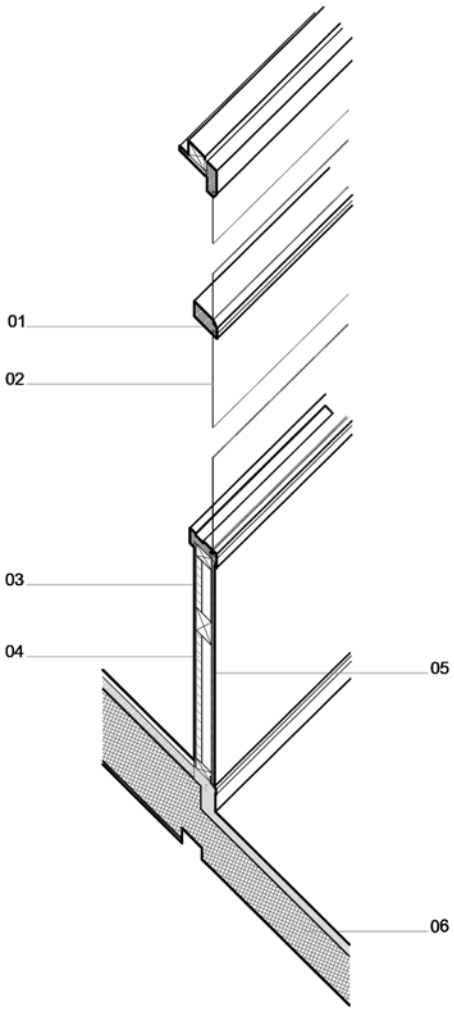
75 Cf. Ibidem.

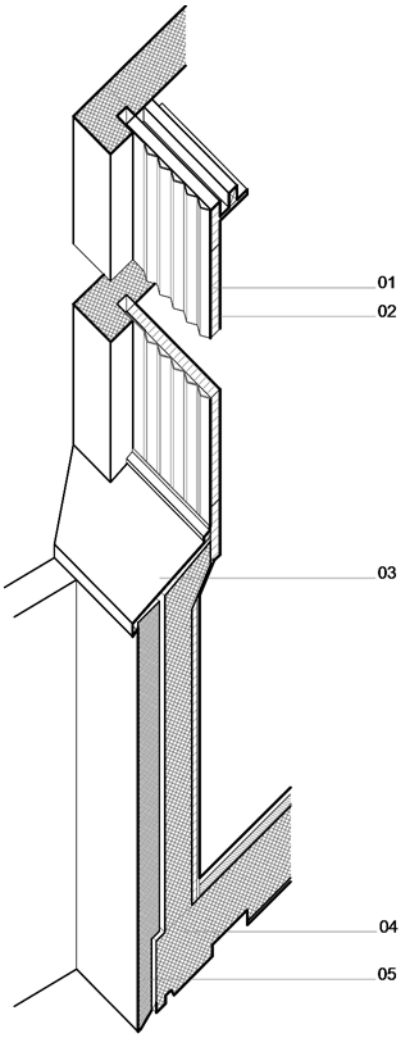
of plaster is laid on the ceiling, inside the apartments, whether outside, in the balconies, the slab remains raw.[76]

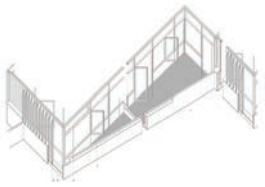
The opaque parapets (both window and balcony ones) are made of reinforced concrete, which help to stiffen the structure of the building, also allowing the attachment of the prefabricated concrete panels. Each of these panels is perceived as a single element, "legible by its thickness"[77], however, aligned together, they emphasize the horizontality of the building. In addition, it is important to notice that this parapet walls have no insulation layer.[78]

The translucent parapets in wired glass are sustained in a steel frame, painted blue, as the window frames. They contribute to the lightening variety inside the apartments.

The window frames are in pinewood, painted blue. On the ground, "the frames are recessed into the slab to ensure the spatial fluidity between the interior and exterior"[79]. Their bottom opaque panels are made of an exterior Eternit panel (fibre cement), an insulation layer of 15mm and a covering wooden block board on the interior side.







See attatchment 1.01.

118. Axonometric section of the wall opened towards the balcony. 1:20.
1. Pine wood window frame;
2. Single glazing;
3. Wood block board (8mm);
4. Mineral wool insulation board (15mm);
5. "Eternit" fibre cement board (10mm).

119. Axonometric section of the opaque wall. 1:20.
1. Corrugated aluminium sheet (2mm);
2. "Grisodur" wooden fibre board (30mm);
3. Protecting drip in aluminium (2,5mm);
4. Reinforced concrete slab;
5. Prefabricated concrete panel (8cm).

76 Cf. Ibidem.

77 "(...), lisible par son épaisseur, (...)" in Ibidem.

78 Cf. Ibidem.

79 "Les cadres reposent sur le sol et sont encastrés dans le dessous de la dalle afin de garantir la fluidité spaciale entre intérieur et extérieur." in Ibidem.

Saugey also used aluminium in *Miremont*. Although with "the advantages of durability, lightness, and mounting malleability"[80], aluminium was still not very used as a constructive material in Switzerland, at the time. Indeed, in Geneva Saugey played an important role, working close with the industry, which enabled him to find always a new and unique employment for this material in every project.

In *Miremont*, Saugey used aluminium in two different circumstances, both with an ornamental character: the *brise-soleils* and the panels overlaying the opaque sections of the façade. Nonetheless, without forgetting the economical aspect of construction, here the "aesthetic meets the economic factor, [once] each folding corresponds to the least of aluminium for the maximum strength"[81].

Therefore, the *brise-soleils* with the function of protecting the dwelling from the direct face-to-face views between opposite apartments are made of folded industrially-oxidized aluminium sheets, with 1,5mm thick, held in an aluminium profile frame. On top they are fixed to the slab and screwed into the wood window frames, while on the bottom, they are attached, through a threaded bracket, to an aluminium tablet, 2mm thick, applied on the parapets.[82]

Along with, the façade's superior panels, covering its opaque sections, are also made of an aluminium sheet. In their case, the folded aluminium sheet is applied against a wooden fibre board (Grisodur)[83], with 30mm. The whole set is held in an angled aluminium frame.[84] However, it is important to note that apart from the thin wooden fibre board there is no additional insulation layer.

120. View of the façade from the balcony. Photo klemm.

80 "(...), des avantages de durabilité, de légèreté et donc de maniabilité pour le montage." in Ibidem.

81 "L'aspect esthétique rejoint l'aspect économique: chaque pliage correspond au minimum d'aluminium pour un maximum de rigidité." in Ibidem.

82 Cf. Ibidem.

83 Swiss-made wooden fibre boards.

84 Cf. Ibidem.

Nevertheless, Saugey also "opposed an innovation to this deliberated economy (certainly imposed by the budget)"[85] – the use of external thermostats, placed on the Southeast and Northwest façades, allowing to command, separately, both heating circuits, according to the sunlight levels on each façade, thus, enabling "a sensitive economy of coal and a better comfort for tenants"[86].

Additionally, in the entrance halls, the set of different and heterogeneous materials applied also contributes to emphasize the building's rich spatiality.

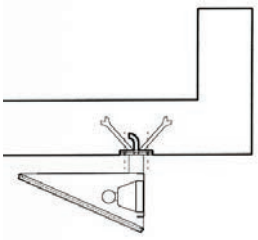
The walls, covered with plaster of a fine-grained texture, are painted bordeaux or black, or yellow or grey, "depending on the effect of depth searched"[87]. Their oblique position also plays and important role in the "felling of openness and in the change of perspective"[88].

121. Different colours on the hall's walls. Photo Saugey.

The interior flooring is a polished terrazzo, whereas the garden flooring is also a terrazzo yet not polished. Both have a greyish colour. Moreover, the totally glazed wall is made of a single glazing, hold in a metallic frame.[89]

Plus, the false-ceiling, made of a perforated steel sheet, 2mm thick, works as a heat radiator of the heating tubes located above.[90] Along with the façade's thermostats, it constitutes an additional economical innovation introduced by Saugey.

Another interesting feature is the lightning furniture of the common areas of the building, which include several differences, being once more the testimony of the variety of beautiful details created by Saugey in *Miremont*. Under the horizontal breezeways, recesses circles in the slabs "receive the lamps that illuminate the passage"[91]. On the other hand, the slope breezeways leading to both entrance halls are equipped with suspended lamps, with some differences between the sides *Calas* and *Miremont*. The same models are used inside each hall, above the entrance doors, landing doors and the doors providing access to the garden.[92]



122. 123. Suspended lamps. Side *Miremont* and *Calas*.

In *Miremont*, Saugey "proceeds by a process of analytical decomposition, which tends to burst in the dematerialization of space"[93]. Each of the building's elements was designed and positioned "as an independent plastic object, participating actively in the definition of space, [and] acquiring a life on its own, legitimately based on its sole function"[94].

85 "(...), oppose une innovation à cette économie voulue, mais certainement imposée par le budget, (...) in Idem, p.58.

86 "(...), une «économie sensible» de charbon et un «confort accru» pour les locataires." in Ibidem.

87 "(...), selon l'effet de profondeur ou de rapprochement recherché." in Patrick Devanthéry; Inès Lamunière – op. cit., p.19

88 "(...), le jeu de l'ouverture et du changement de perspective." in Idem.

89 Cf. Ibidem, p.25.

90 Cf. Ibidem, p.23.

91 "(...), reçoivent des luminaires qui éclairent le passage." in Ibidem.

92 Cf. Ibidem.

93 "(...), procède par une décomposition analytique qui tend à l'éclatement, à la dématérialisation de l'espace." in Catherine Dumont d'Ayot (2000) – op. cit., p.32.

94 "(...), en tant qu'objet plastique indépendant et participe activement à la définition de l'espace; il acquiert une vie propre, une légitimation fondée sur sa sole fonction." in Idem.

124. Hall *Calas*. Photo Suagey.

Taking the example given by Catherine Dumont d'Ayot in her article "Miremont-le-Crêt, *l'espace habitable*": "the staircase itself is decomposed into risers and treads ([made of a] greyish artificial stone); the railing is divided into successive segments clearly separated, an horizontal segment along the floor landing (wired glass), a perpendicular segment to the floor landing (wood panel), a diagonal segment of the staircase (wired glass), empty; the walls are painted, pearl-grey or light yellow, the flooring is blue linoleum in front of the lifts, in door mat between the apartments' doors, the landing doors are dark blue, the apartment doors are in varnished wood, the neon lights are detached from the walls inside a metal box"[95].

As a result, the apartment building *Miremont-le-Crêt* is "composed by a series of elements that coexist simultaneously and refuse to integrate [themselves] into a formal hierarchy"[96].

03.1.3 «*L'espace habitable*»: an innovative answer within the post-War housing experiences

"Miremont-le-Crêt is a manifesto [where] Saugey proposes his version of the unité d'habitation*, an exemplar interpretation of the theme of the* immeuble-villas*, the stacking and agglomeration of individual units, capable, each other, of replacing the spatial qualities of a* villa *and, at the same time, creating a collective space that gives an urban dimension to the whole"*[97].

According to Catherine Dumont d'Ayot, the apartment building *Miremont-le-Crêt* may nowadays be considered an undoubtedly original building among the context in which it appeared – the "national and also international housing experiences conducted in the fifties"[98], across Europe and throughout the World. Indeed the history of housing is now able to prove that "there is surely, neither in Europe nor in the United-States, a building proposing an equivalent typology".[99]

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95 "(...), l'escalier lui-même est décomposé en limon et marches (pierre artificielle grise); le garde-corps est découpé en segments successifs clairement séparés, segment horizontal le long du palier d'étage (verre armé), segment perpendiculaire au palier d'étage (bois plaqué), segment en diagonal de l'escalier (verre armé), vide; les murs sont peints, gris, perle ou jaune claire, le sol est en linoleum bleu canard devant l'ascenseur, en paillasson entre les portes des logements, les portes d'ascenseur sont blue foncé, les portes palières sont en bois verni, les néons sont détachés des murs dans un caisson métallique." in Ibidem.

96 "(...), composé par une série d'éléments qui coexistent simultanément et refusent de s'intégrer dans une hiérarchie formelle." in Ibidem.

97 "Miremont est un manifeste: Saugey propose sa version du modèle de l'unité d'habitation, une interprétation exemplaire du thème de l'immeuble-villas, de l'empilement, de l'agglomération d'unités individuelles, capables, chacune, de restituer les qualités spatiales d'une villa et, dans le même temps, de créer un espace collectif donnant une dimension urbaine à l'ensemble." in Ibidem, p.29.

98 "(...), national et même international des expériences sur le logement menées dans les années cinquante, (...)" in Ibidem.

99 "(...), il n'y a en effet pas, ni en Europe ni aux Etats-Unis, dimmeuble construit proposant une typologie équivalent." in Ibidem.

Miremont was conceived within a research line focused in finding new housing solutions, as a result of "several criticisms made against the [monotonous] «matchboxes' [models], more or less long or high», stemming from the Modern Movement's theories"[100], which had inspired the economical housing projects in-between the Wars, as well as the Reconstruction models. These examples were then considered "incapable of formulat[ing] a recognizable urban figure"[101] – because of the building's urban isolation – and the parallel block was seen as an improper urban form, once it conduced to "a lack of privacy, linked to the direct *vis-à-vis* between apartments"[102].

Consequently, the 8th CIAM conference[103] of 1951, "gave a large echo to these criticisms, proposing new researches"[104] focused on "careful reflexion[s] on the historical and ethnological models, [in order to] rethink the role of the city [historical] centre"[105] in the development of new residential models.

As a response to this debate, the post-War testified the emergence of a range of original projects "proposing an urban alternative to the individual *villa"*[106] and inspired in existent examples as the Grouped Apartment Towers (Franck Lloyd Wright, Chicago, 1939) or the Highpoint I (Lubetkin & Tecton, London, 1933-1935).[107]

Thus, resulting in the pursuing of two different research directions: one based on the urban reinterpretation of the *maisonette*, "a composition on two floors, with a staircase and if possible a double height stressing this disposition"[108] – mainly developed by Le Corbusier in his successive units (Marseille, 1945-1952; Rezé-les-Nantes, 1952-1955; Berlin, 1956-1958; Briey-en-Forêt, 1957-1959 and Firminy, 1961-1967); and the other consisting on the urban adaptation of the courtyard house typology – as Mies van der Rohe (1886-1969) or Ludwig Hilbersheimer's (1885-1967) examples – "constructing the space around a central piece"[109] and therefore privileging "the interior-exterior relation of the dwelling"[110].

Miremont can be included in the second. In one level, Saugey used "a fragment of exterior space – [the triangular balcony] - to dilate the interior cellule"[111], allowing the apartments to acquire the spatiality of a *villa*.

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100 "(...), de nombreuses critiques ont été formulées à l'encontre des modèles « de boites d'allumettes, plus ou moins longues ou hautes» issus du movement moderne, (...)" in Ibidem.

101 "(...), incapacité à former une figure urbaine reconnaissable, (...)" in Ibidem.

102 "(...), les problèmes du manque d'intimité, lié au vis-à-vis frontal entre les appartements, (...)" in Ibidem.

103 The 8th CIAM congress was held in Hoddesdon, England, in 1951, under the theme: The Heart of the City.

104 "(...), donnent un large écho à ces critiques et proposent des voies de recherches pour l'avenir, (...)" in Ibidem, p.29.

105 "(...), réflexion attentive sur les modèles historiques ou ethnologiques pour repenser le rôle particulier du centre-ville, (...)" in Ibidem.

106 "(...), proposer une alternative urbaine à la villa individuelle, (...)" in Ibidem, p.30.

107 Frank Lloyd Wright (1867-1959), Berthold Lubetkin (1901-1990).

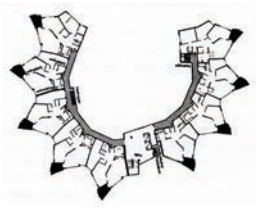
108 "(...), une composition sur deux étages, avec un escalier et si possible une double hauteur affirmant cette disposition." in Catherine Dumont d'Ayot (2000) – op. cit., p.30.

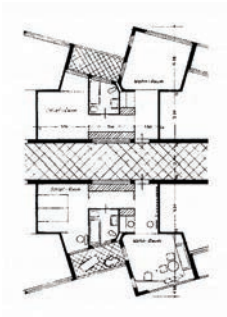
109 "(...), en construisant l'espace autour d'une pièce centrale." in Idem.

110 "(...), la relation intérieur-extérieur du logement, (...)" in Ibidem.

111 "(...), un fragment de l'espace extérieur pour dilater la cellule." in Ibidem.

125. Møller and Fisker. Apartment building in Copenhagen, 1935.





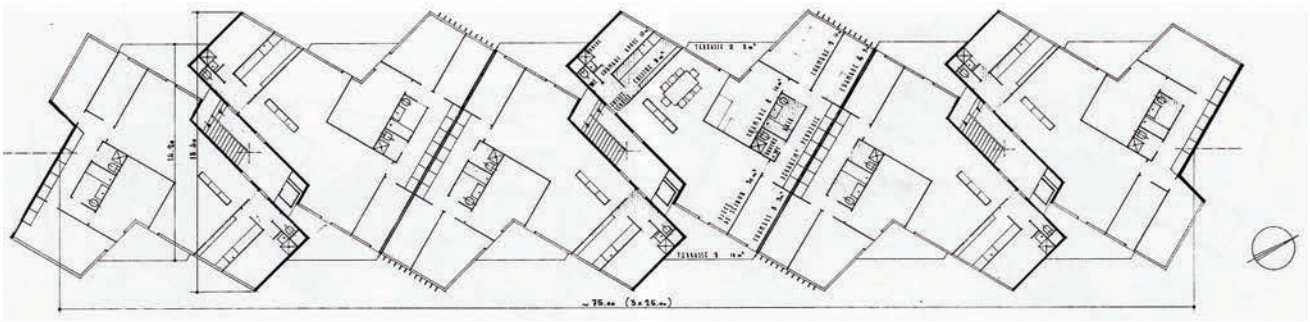
126. 127. Hans Scharoun. Julia tower, Sttutgard (1954-1959), 1:2000. Berlin-Wilmersdorf (project 1929-31), 1:500.

On the other hand, *Miremont*'s typological innovations can also be framed within the researches on "the advantages, (…), [of] bow-windows and interior dispositions allowing diagonal views within the depth of streets and courtyards"[112], taking place since the 19th century, and following examples as the ones of Raymond Unwin (1863-1940) and Ernst May (1886-1970). Or the *Vestersøhus* building (Møller and Fisker, Copenhagen, 1935) where "the balcony-*loggia* overlapping the façade becomes, by means of a continuous angled glazing, an exterior prolongation of the living area"[113].

Nevertheless, the projects closest to Saugey's Miremont are those of Hans Scharoun (1893-1972): *Friedrichshain* (1949), the *Romeo and Julia* towers (Stuttgart-Zuffenhausen, 1954-1959), and the housing projects for Charlottenburg-Nord, built between 1956 and 1961. In all of them it stands out, the "organic forms allow[ing] functional synergies, and the recesses, impossible in the framework of a strict grid, (…), [resulting in] the use of the angle and on the stretching of the diagonal dimension of the rooms. [Therefore, enabling, by the] multiplicity of points of view towards the exterior, the collective housing cellules to acquire the qualities of a *villa*."[114]

Miremont results of "hybridization between [these] different models"[115]. The *interior street* creating a public *promenade* connecting both adjacent roads is made possible by the use of *pilotis* that free the space under the building - an intelligent strategy that can be compared to Le Corbusiers's "*rue marchante"* of the *Unité de Marseille* - although here placed instead in the building's ground floor. On the contrary, the apartments' plan was definitely influenced by Scharoun's, however, with a quite particular typology.

This plan type model, used in *Miremont*, was then reused by Saugey in the project of a housing building for *Crêts-de-Champel* (1960-1961), even though on that case with traverse apartments.



128. Marc-J. Saugey, *Champel-les-Crêts* (project, 1960), 1:500. Archives IAUG, Fonds Saugey (cote SAU 239.01.013).

112 "(...), les avantages apportés par les bow-windows et par les dispositions qui autorisent des vues diagonales dans la profondeur des rues et des cours, (...)" in Ibidem.

113 "(...), le balcon-loggia imbriqué dans la façade devient, au moyen d'un vitrage d'angle continu, un prolongement extérieur du séjour." in Ibidem.

114 "(...), les formes organiques permettent des synergies fonctionnelles, de raccourcis, impossibles dans le cadre d'une grille rigide, (...). L'utilisation de l'angle et l'étirement de la dimension diagonale des pièces, (...), la multiplicité des points de vue sur l'extérieur (doivent permettre) aux cellules du logement collectif d'acquérir les qualités réputées être celles de la villa." in Ibidem, p.31.

115 "(...), une hybridation entre différents modèles, (...)" in Ibidem.

In the end, there are also some recognizable references to Neoplasticism. The "free disposition of the division walls, allowed by a punctual structure"[116], or the "wide use of ramps, unifying the spaces"[117] are some examples. However, the clearest evidences are the "different plans [that exist] in the depth of the façade – the wired glass plates, the concrete parapets, the heads of the slab, the window plans, etc…"[118]

Nonetheless, "the prefabricated concrete parapets [that] turn around on the façade's edges, thus ensuring its horizontal continuity"[119], introduce an ambiguity, which is in the origin of a double paradox – "that of a building marked by continuous horizontal [plans, but also], a succession of vertical edges that fragment it"[120] – in *Miremont* expressed by the use of curtain-walls.

In conclusion, "the dynamic qualities that can be attributed to Saugey's architecture are certainly induced by the successive definition of façade plans that prolong themselves, abstractly"[121], giving its façade the appearance of a continuous surface.

03.1.3.1 The Geneva post-War housing

Developed in a local context, Geneva housing production had always been "a little apart from the great international debates, which only crossed its boarders in a few occasions"[122] – as in the thirties, with Le Corbusiers's projects of *immeubles-villas*, culminating in the construction of *La Clarté* (1932). Therefore, not many of its buildings constitute "essential pieces in terms of architecture history"[123].

Nonetheless, the immediate post-War testified an openness of the architects, especially towards "the west and the American solutions – urban, typological or constructive"[124]. This had several consequences as the replacement of urban enclosed blocks by parallel blocks, "the opening of the housing to the maximum sunshine"[125], as well as the use of new materials, such as steel or aluminium – "which radically changed the image of the housing buildings, [with the adoption of] the curtain-wall in residential programmes"[126].

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116 "(...), la libre disposition des cloisons, permis par une structure ponctuelle, (...)" in Patrick Devanthéry; Inès Lamunière – op. cit., p.17.

117 "(…), l'usage de larges rampes qui unifient les espaces, (...)" in Idem.

118 "(…), des différents plans dans la profondeur de la façade avec les plaques de verre armé, les parapets de béton, les têtes de la dalle, les plans du vitrage, etc..." in Ibidem.

119 "(…), les parapets de béton préfabriqués se retournent, assurant ainsi une grande continuité horizontale à l'édifice." in Ibidem.

120 "(…), un ensemble marqué par les horizontals continues et celle d'une succession d'arêtes verticales qui le fragmentent." in Ibidem.

121 "Les qualités de dynamique que l'ont peut attribuer à l'architecture de Saugey sont certainement induites par la définition successive des plans de façades qui se prolongent, même de manière abstraite, (...)" in Ibidem.

122 "(…), en dehors des grands débats internationaux, qui ne franchissent nos frontières que par le biais de quelques occasions, (...)" in IC – "De l'habitat social aux grands enseembles" in Isabelle Charollais et al. – op. cit., vol.1, p.179.

123 "(…), pieces essentielles sur le plan de l'histoire de l'architecture, (...)" in Idem.

124 "(…),l'ouest et les solutions américaines - urbaines, typologiques ou constructifs, (...)" in Ibidem, p.180.

125 "(…), l'ouverture des logements eux-mêmes vers l'ensoleillement maximale." in Ibidem.

126 "(...), modifient radicalement, (…), l'image des immeubles de logement. La façade Rideau, (…), pour des bâtiments d'habitation." in Ibidem, p.208.

Even thought, in Geneva most dwellings were still very dependent of the designs adopted in the years between the two WWs, despite starting to respond to the social changes of the fifties – call[ing] for rational spaces, arranged and equipped"[127]. In addition, the system developed by the Honegger brothers and the *Atelier d'Architects* in the thirties – the rational grouping of "living-room, dining-room/area, kitchen"[128] – had become a standard.

Thus, "the new housing of the fifties was conceived fundamentally in terms of functional and technical rationalization, (…),often in detriment of researches linked to the quality of space"[129]: rooms were juxtaposed along the façade, with their "width vary[ing] depending on the structural system adopted"; bathrooms were placed in a central position, due to "the increase in depth of the buildings and, (…), the technical rationalization involving the gathering of ducts and pipes"[130]; the distribution systems "were also re-studied with the objective of serving the largest possible number of apartments with the same stairwell, (…), involve[ing] frequently the removal of traverse-apartments"[131].

Consequently, Geneva owes to Saugey its most remarkable typological innovations, with *Miremont* being one of its fine examples[132]. The replacement of "single-function juxtaposed rooms by a unitary space, fluid and continuous"[133], turned to the maximum sunshine, "offered him the possibility to explore [beautifully] the theme of space"[134] in a housing programme.

Furthermore, according to Saugey, this "new conception of the housing [had] inevitably an extension in the interior displays"[135] of the house – some furniture should be abandoned and replaced by more complete and integral solutions[136]. These new preoccupations had their reflexes on the design of the housing floor plans. Therefore, "furniture items, (…), no longer conceived as added objects, (…), became the real protagonists of the spatial composition, incorporated as fixed elements in the architectural ensemble."[137] Following the examples of Coderch's *villas*, "all white, on top of a Spanish hill, with practically no furniture, all of which is attached to the building."[138]

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127 "(…), qui réclament des espaces rationnels, agencés et équipés." in Ibidem, p.198.

128 "séjour, coin-repas, cuisine" in Ibidem.

129 "(…), le nouveau logement des années cinquante se conçoit essentiellement en termes de rationalisation fonctionnelle et technique, (...), au détriment souvent des recherches liées à la qualité de l'espace." in Ibidem, p.200.

130 "(...), l'augmentation de la profondeur des immeubles, (...), rationalisation technique qui implique le groupement des gaines et des conduites." in Ibidem, p.198.

131 "(...), sont également réétudiés, afin de desservir le plus grand nombre possible de logements par une même cage d'escalier, (...), implique la suppression fréquente des appartements traversants." in Ibidem, pp.198-200.

132 Cf. Ibidem, p.287.

133 "(…), chambres monofonctionnelles juxtaposées, par un espace unitaire, fluide et continu." in Ibidem, p.202.

134 "(...), lui a offert la possibilité d'explorer le thème de l'espace." in Ibidem, p.202.

135 "Cette nouvelle conception du logis a inévitablement un prolongement dans un aménagement intérieur." in Marc-J. Saugey – op. cit., p.82.

136 Cf. Idem.

137 "(…), les éléments de mobilier, (...), Non plus conçus comme des objets ajoutés, (...), deviennent de réels protagonistes de la composition spatiale, intégres comme des éléments fixes à l'ensemble architectural." in IC – op. cit., p.202.

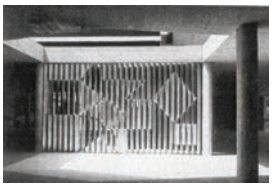
138 "(...) toute blanche, au sommet d'une colline espagnole, pratiquement sans mobilier, tout étant «accroché»

03.1.4 The wall paintings: result of Saugey's permanent collaborations with artists

Saugey's works always revealed – since his association with the *Atelier d'Architectes* – frequent collaborations with artists, resulting in the implementation of art works, mainly paintings, in his buildings. This practice was intensified in the post-War years.

According to Catherine Dumont d'Ayot, *Miremont*'s mural paintings "were developed inside Saugey's office"[139], as part of the "contemporary experiences of the group *Espace"*[140], that were bond to the "debates [under the theme] of Purism and the Synthesis of the Arts"[141]. Saugey's involvement in this group was due to George Aubert, who since 1933 intervened regularly in the works of the *Atelier d'Architectes.*[142]

Internationally, the rapport between art and architecture was "in the centre of the architectural debates, ever since the beginning of the post-War"[143], and had being discussed in both the 6th and the 7th CIAM congresses[144]. The buildings of the University of Caracas (Carlos Raúl Villanueva, 1944-1970), with the integration of art works from Alexandre Calder, Fernand Léger, Henri Laurens and Victor Vasarely[145], were considered one of the most notable examples of the Synthesis of the Arts of that period. In an interview in 1999, Louis Bongard confirmed their influence, as well as Mondrian's[146] in the art work he created for *Miremont*.[147]



129. 130. University of Caracas (1952). Works of Victor Vasarely, Positif-Negatif (1954).

Two artists worked together with Saugey to create Miremont's unique wall paintings: Louis Bongard and Edouard Nierlé.

The first was responsible for the mural painting on the garden's retaining wall, which "creates geometric correspondences between the interior wall of the hall, also coloured, the window frames, the shadows projected by the zig-zag façade and the sky"[148]. Thus, originating a space "full of movement"[149], that gives "depth to the entrance hall, (…), [at the same time it] creates a horizon"[150]

à la construction, (...)" in Marc-J. Saugey – op. cit., p.82.

139 "(…), seront réalisées à l'intérieur de l'atelier de Saugey, (...)" in Catherine Dumont d'Ayot (2000) – op. cit., p.33.

140 "(...), expériences contemporaines du groupe Espace." in Idem.

141 "(…), débats sur le Purisme, puis sur ceux de la Synthèse des Arts, (...)" in Ibidem.

142 Georges Aubert (1886-1961) was a "colleague and intimate friend of Le Corbusier". Saugey met him in a visit to the *Petite Maison de Corseaux*, organised by Francis Quétant to the members of the GANG, in the presence of Le Corbusier, Amédée Ozenfant and Georges Aubert. Saugey, Schwertz and Lesemann followed his teachings in his school-atelier, from 1933. Cf. Ibidem, p.33.

143 "(…), au centre des débats architecturaux dès le début de l'après-guerre, (...)" in Ibidem.

144 The 6th CIAM congress was held in Bridgewater, England, in 1947, under the theme: Reconstruction of the Cities; The 7th CIAM congress was realised in Bergamo, Italy, in 1949, under the theme: Art and Architecture.

145 Carlos Raúl Villanueva (1900-1975), Alexandre Calder (1898-1976) , Fernand Léger (1881-1955), Henri Laurens (1885-1954) and Victor Vasarely (1906-1997).

146 Piet Mondrian (1872-1944).

147 Cf. Catherine Dumont d'Ayot (2000) – op. cit., p.33.

148 "(…), créent des correspondances géométriques entre la paroi murale intérieur du hall, également colorée, les cadres des vitrages, les ombres portées de la façade en zigzag et la découpe du ciel, (...)" in Idem, p.34.

149 "(…), très mouvant, (…)" in Ibidem.

150 "(…) profondeur au hall d'entrée, (…), donner un horizon, (...)" in Ibidem.

to it.

The second was responsible for the two paintings situated in ramp that gives access to the entrance hall, on the side *Miremont*.

131. The mural painting from Louis Bongard. Photo Catherine Dumond d'Ayot.

132. The panel from Edouard Nierlé. Photo Catherine Dumond d'Ayot.

In "*L'espace habitable*", Saugey mentioned the caves of Dordogne, where "the paintings, in places felt determined, already created the bonding elements [with the surrounding] nature and the landscape"[151]. He insisted in the assembly of "interior spaces, exterior atmospheres, colours and the adequate ambiance"[152], and that is most likely why *Miremont* is "probably one of the best achievements in the thematic of the synthesis of the arts, in Geneva"[153].

Note: Apart from the description above presented, "an essential contribution to the comprehension of this work is given by the architect himself"[154] in his article "*L'espace habitable*" – more than once referred in this text. Published in 1961 in the Swiss-French architecture magazine *Architecture, Formes et Functions* – Saugey explains there, both the urban and architectural premises behind the conception of *Miremont-le-Crêt*. A full transcription of this article (in the original language) is available in the attachments of this work.

03.1.5 The recognition of *Miremont*'s heritage value: the heritage classification (2002)

Note: The following description of *Miremont-le-Crêt*'s heritage classification process is based on the documents comprised in the building's *dossier de classement* – a file that gathers all the information that was part of the procedure – which is available for public consultation at the *Office du patrimoine et des sites* of Geneva. The referred *dossier* contains all the correspondence exchanged between the competent authorities, as well as with the building's co-owners; their respective observations;

151 "«les peintures, à des emplacements que l'on sent déterminés, créent déjà des éléments de liaison» avec la nature et le paysage." in Ibidem.

152 "(...), «espaces intérieurs, atmospheres extérieurs, couleurs, ambiance adéquate»." in Ibidem.

153 "(…), probablement la meilleure réalisation s'inscrivant dans la thématique de la synthèse des arts à Genève." in Ibidem, p.33.

154 "(...), une contribution essentielle à la compréhension de l'oeuvre nous est donnée par l'architecte lui-même." in Patrick Devanthéry; Inès Lamunière – op. cit., p.14.

and the decree of the State Council confirming the listing of *Miremont* as a Cantonal monument. A copy of the last is provided in the attachments of this work.

03.1.5.1 The demand for protection measures – why safeguarding *Miremont*?

The heritage classification process of *Miremont-le-Crêt* began with an appeal from the Institut d'Architecture de l'Université de Genève (IAUG). With the support of a group of teachers from the 3rd cycle in preservation of modern and contemporary built heritage (at the IAUG), in 1998, Professor Bruno Reichlin requested – on a letter to the *Direction du patrimoine et des sites*[155] – the urgent opening of a heritage classification procedure for the building – which "by its spatial configuration, typology and quality of [both] the apartments and common spaces, (...), is a unique example in Switzerland and probably in Europe"[156].

The causes of this urgent demand were certain concerns arose by some minor transformation works (in appearance) that were being executed at the time. These works included the repair of the roof and the replacement of some lifts' landing doors. Although little substantial, they "worried many architects living in the building"[157], drawing also the attention of a group of teachers from the IAUG, on a visit organized to the apartment building.[158] Moreover, further concerns arouse by "possible adaptation [works] to the new security standards"[159], which might be approved in response to "a fire that had recently occurred in one of the cellars"[160].

Therefore, Professor Bruno Reichlin, responsible for the 3rd cycle in preservation at the IAUG, declared himself extremely worried about the possible consequences of works conducted in *Miremont* in the absence of protection measures, reminding "the fragility of [its] architecture and the irreversible damages that works realized without an effective supervision, of the competent instances, can

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155 *Direction du patrimoine et des sites* - DPS (in English, Direction of heritage and sites), presently called *Office du patrimoine et des sites* - OPS (in English, Office of heritage and sites). It is under the tutelage of the *Département de l'aménagement, du logement et de l'énergie* – DALE (in English, Departement of planning, housing and energy). It includes the following services: *Service de l'inventaire des monuments d'art et d'histoire* (Inventory of art and history monuments), the *Service d'archéologie* (Archaeology service) and the *Service des monuments et des sites* (Monuments and sites service). Information available at: http://www.ge.ch/dale/ [09.09.2014].

156 "(…), par sa configuration spaciale, par sa typologie et par la qualité des espaces des appartements et des parties communes, (...), est un exemples unique en Suisse et probablement en Europe." in Bruno Reichlin - letter to the DPS, Octobre 28th 1998.

157 "(...), suscitent l'inquiétude de plusiers architects résidant dans l'immeuble, (...)" in Pierre Baertschi – "Éditorial" in Pierre Baertschi (dir.) – op. cit., p.4.

158 As stated by Professor Bruno Reichlin on his letter to the DPS, this visit was held "on the introduction day of the new session of the 3rd cycle in preservation of the modern and contemporary built heritage" at the IAUG, and included "a programme of guided tours to some important Modern buildings in Geneva", where "consequently, (…), the apartment building Miremont-le-Crêt" was included. - "Lors de la journée d'introduction de la nouvelle session du 3e cycle de sauvegarde du patrimoine bâti modern et comtemporain, nous avons organisé un programme de visite de certains édifices importants de l'architecture moderne à Genève et notamment nous avons été voir le bâtiment d'habitation de Miremont-le-Crêt, (...)" in Bruno Reichlin - letter to the DPS, Octobre 28th 1998.

159 "(…), d'une possible adaptation aux nouvelles normes de sécurité, (...)" in Idem.

160 "(…), l'incendie qui s'est déclaré récemment dans une des caves." in Ibidem.

provoke"[161], thus asking the department not only to initiate a procedure of classification but also to "intervene in the works in progress"[162].
Copies of this letter were also sent by the IAUG to the associations *Action Patrimoine Vivant* (Mrs. Erica Deuber-Pauli) and *Société d'Art Publique* (Mr. Patrick Malek Asghar), as well as to Mr. Cyrille Simonnet, director of the IAUG.

Just a few days later, on November 4th 1998, the SAP addressed a letter to the State Counsellor in charge of the DAEL[163] – Mr. Laurent Moutinot – answering Professor Bruno Reichlin's alert. It stated that the "*Société d'Art Publique* appreciated every action allowing the preservation"[164] of *Miremont*, thus demonstrating its support to the opening of a classification procedure. In the referred letter Mr. Patrick Malek Asghar also requested to be informed about the decision, and about the protection measures adopted or envisioned for the building.
Consequently, in accordance with the applicable law and respective regulation[165], the *Commission des monuments, de la nature et des sites*[166] examined the classification demand at its session of November 24th 1998, deciding in favour of the opening of a heritage classification procedure for the apartment building *Miremont-le-Crêt*.

This way, on December 16th 1998, the director of the DPS, Mr Pierre Baertschi, answered Professor Reichlin, communicating him the department's decision of supporting his request. Immediately, the CMNS, also alerted the DAEL about the interventions being developed in the building, requiring "the suspension of all types of works, including maintenance works"[167].
Moreover, on December 14th 1998, the department's chief, Mr. Laurent Moutinot had also informed the SAP of the decision made, which took "into account the alteration threats hanging over this building and the several supports [received in favour of] the classification demand"[168].

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161 "(…), la fragilité de cette architecture et les dégâts irréversibles que pourraient provoquer des travaux menés en l'absence d'une surveillance effectuée par des instances compétentes." in Ibidem.
162 "(…), d'intervenir sur les travaux actuellement en cours." in Ibidem.
163 *Département de l'aménagement, de l'équipement et du logement* - DAEL (in English, Department of planning, equipment and housing) presently called *Département de l'aménagement, du logement et de l'énergie* – DALE (in English, Department of planning, housing and energy). It is the Cantonal department in charge of the *Office de l'urbanism* (Urban-planning office), *Office du logement* (Housing office), the *Office du patrimoine et des sites* (Heritage and sites office), *Office du registre foncier* (Land registry office) and *Office de l'énergie* (Energy office). Information available at: http://www.ge.ch/dale/ [09.09.2014].
164 "(…), la Société d'art public apprécie ainsi pleinement toute démarched permettant la préservation de l'intégrité du bâtiment." in Patrick Malek Asghar - letter to the DPS, November 4th 1998.
165 Article 10 of the LPMNS - *Loi sur la protection des monuments, de la nature et des sites* and article 22, paragraph 1, letter b, of the RLPMNS - *Réglement d'exécution de la loi sur la protection des monuments, de la nature et des sites*.
166 *Commission des monuments, de la nature et des sites* (in English, Commission for monuments, nature and sites), presently called *Service des monuments et des sites* (in English, Monuments and sites service). Information available at: http://www.ge.ch/dale/ [09.09.2014].
167 "(…), un effet suspensif a tous types de travaux, y compris ceux d'entretien." in CMNS – December 16 1998.
168 "(…), compte tenu des menaces d'altération qui pèsent sur ce bâtiment et vu les divers soutiens apportés à la demande de classement." in Laurent Moutinot – letter to the SAP, December 14th 1998.

03.1.5.2 The beginning of a long-lasting procedure: *Miremont*'s co-owners first reactions

Following the department's decision to support the demands requiring the heritage listing of *Miremont-le-Crêt*, a long process of informing all the apartments' owners about the ongoing procedure was initiated. Along with it, all co-owners had the right to be heard and thus, communicate the department their observations, as well as request detailed information on the rights and obligations of the implementation of such a protection measure. Hence, "the administration was faced with an arduous [and long-lasting] task"[169].

Between February 4th and March 9th 1999, 94 letters were addressed – by the DAEL's department chief, Mr. Laurent Moutinot – to the co-owners of the apartments located in the buildings *8 ABC avenue de Miremont* (93 owners), as well as to the *SI Miremont-Les-Crêts D* – an investment company holder of the buildings *5-7 avenue de Calas* (whose apartments have a rental status) – domiciled in the real estate company Serimo.

These letters informed them about the classification requests demanded by the IAUG and the SAP, as well of the department's consequent decision of opening a heritage classification procedure for the building, inviting them to communicate their remarks. In addition, they also notified the co-owners that "no changes to the primitive substance of the building and its use [should] be done without permission"[170], until the process's conclusion.

Accordingly, the DAEL received individual comments from twelve of the co-owners – six in favour of the building's heritage classification, two against and four calling the department for further information.

In order to clarify their questions, on February 19th 1999, Mr. Jean-Raoul Haerbeli – administrator of the co-propriety *8 ABC avenue de Miremont*, assigned by the real estate agency Brolliet – invited the director of the DPS, Mr. Pierre Baertschi, to the co-ownership's general assembly of May 5th 1999.

As a result of the opinions expressed during this meeting, the DPS understood that complementary information on "the effects of an eventual classification measure [was necessary], particularly regarding the constitution of a project of specifications"[171]. The office was then made responsible for commissioning an architecture office to develop a study of this kind for *Miremont*.

Since the classification procedure entailed the development of such a particular documentary base, it was decided to postpone the deadline for the collection of observations; all the co-owners were

169 "(…), l'administration se trouve confrontée à une tâche ardue." in Bruno Reichlin – op. cit., p.4.

170 "(…), aucun changement à l'état primitif et à la destination des immeubles ne peut être apporté sans autorisation." in Laurent Moutinot – letters to Miremont's co-owners, February 4th – March 9th 1999.

171 "(…), les effets d'une éventuelle mesure de classement , en particulier en rapport avec la constitution d'un futur cahier des charges" in DPS – Note relative à la demande de classement de l'immeuble Miremont-le-Crêt, May 17th 2001, p.2.

informed of the decision on a letter dating from May 18th 2000.

03.1.5.3 A particularity of *Miremont*'s classification procedure: the project of specifications

With the agreement of the real estate agency Brolliet, the *Direction du patrimoine et des sites* commissioned the Geneva architecture office Devanthéry & Lamunière – "which had already gained experience in the matter"[172] – a detailed study on the conditions of the building and the definition of the necessary works in the frame of a future rehabilitation intervention. The investigation works were concluded until the end of 1999[173].

Due to "the quality of the material collected"[174] and with the aim of stimulating a committed debate on the circumstances of a possible preservation – although "the documents collected and opinions expressed, (…), [were] gathered in a file, (…), firstly communicated to all those directly concerned"[175] – the DPS decided to make its content public.

Therefore, an article summarizing the investigation's results was published in the architecture journal *Patrimoine et architecture* (nº.9), in May 2000. Apart from the analysis of the existent problems, developed from surveys conducted by the architects, a draft of the specifications for a possible rehabilitation was also proposed by them[176]. This publication also included an article from Catherine Dumont d'Ayot, contextualising the building in the work of Saugey[177].

On May 18th 2000, the DPS sent a copy of this journal to each co-owner of *Miremont*, as well as to the real estate agencies Brolliet and Serimo.

This study, extremely complete within a context of a heritage classification procedure, also "allow[ed] to establish gradually a consistency that defines the qualities of the work – (…), linked to the urban concept, the plastic definition of the object, the technical innovations, the typological [innovative] researches [and] the constructive details"[178] – thus having a great importance in the conclusion of the classification process, as well as in the consequent adoption of protection measures.

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172 "(...), une étude sera confiée à un bureau d'architectes qui à déjà acquis une experience en la matière" in Pierre Baertschi – op. cit., p.4.

173 Cf. Pierre Baertschi – letter to the co-owners of *8 ABC avenue de Miremont*, May 18th 2000.

174 "La qualité des documents recueillis, (...)" in Idem.

175 "L'emsembles des documents et points de vues exprimés doivent pouvoir être réunis dans un dossier pilote qui sera communiqué en primier lieu à toutes les personnes directement intéressées" in Ibidem.

176 Cf. DPS – *Note relative à la demande de classement de l'immeuble Miremont-le-Crêt*, May 17th 2001, p.3.

177 Cf. Catherine Dumont d'Ayot (2000) – op. cit., pp.29-34.

178 "(...), permettent d'établir peu à peu une cohérence qui précise les qualités de l'oeuvre, (...), liées au concept urbanistique, à la définition plastique de l'objet, aux innovations techniques, aux recherches typologiques ou encore aux précisions constructives, (...)" in Patrick Devanthéry; Inès Lamunière – op. cit., p.13.

03.1.5.4 *Miremont*'s co-owners final notice on the procedure

On November 1st 2000, the real estate agency Brolliet organised another assembly gathering once more the co-owners of the buildings *8 ABC avenue de Miremont*. This assembly also counted with the presence of Patrick Devanthéry, architect, and Mr. Pierre Baertschi, director of the DPS.
After some clarifications from the DPS, a ballot was realised. The agency Brolliet gave the co-owners ballot papers with the three following options: "solution nº1: no protection measure; solution nº2: inscription of the buildings in the inventory; [and] "solution nº3: classification of the buildings"[179]. The co-owners were also encouraged to leave their comments on the ballot bulletins, justifying their choices.
The votes, counted in the end of the assembly, "revealed a relatively equal share of opinions between the co-owners favourable to the [building's] classification and those opposed"[180], with 12 votes in favour and 10 against. Afterwards, the ballot papers were forwarded to the DAEL, and included in the *dossier de classement*, being presently available for public consultation, along with the other documents of the process.

During this session some co-owners also expressed their concern about "the extension of a protection measure, bearing not only upon the exterior envelope but also on the common areas and [even] the apartments"[181]. Most "were opposed to a classification measure of the interiors [of the apartments], which could include the interdiction of modifying interior division walls or even readapting the kitchens."[182]
In addition, some co-owners criticised the maintenance of the building's side *Calas*, arguing that they had "correctly maintained their building while the two buildings located on the side of *Calas*, (…), were, in their opinion, neglected in their maintenance"[183].
As a consequence, the deadline to collect the co-owners' observations was again postponed, to December 31st 2000. Thus, on November 9th 2000, a letter was addressed to the real estate company Serimo, informing the *SI Miremont-Les-Crets D* of the new deadline for the collection of observations.

In total, until the deadline fixed on December 31st 2000, the DAEL received 23 comments from the co-owners of the buildings *8 ABC avenue du Miremont*. From those, 18 supported the classification

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179 "solution nº1: aucune mesure de protection; solution nº2: inscription des immeubles à l'inventaire ; solution nº3 : classement des immeubles" in DPS – *Note relative à la demande de classement de l'immeuble Miremont-le-Crêt*, May 17th 2001, p.3.
180 "(...), ont fait apparaître des avis relativement partagés à parts égales entre les copropriétaires favourables au classement et ceux opposés." in Idem.
181 "(...), l'étendue d'une mesure de classement portant non seulement sur l'enveloppe extérieur mais encore sur les parties communes et le logements." in Ibidem.
182 "(...), sont opposés à une mesure de classement des intérieurs, qui pourrait comprendre l'interdiction de modifier les cloisonnements intérieurs, voire de réadapter les cuisines" in Ibidem.
183 "(...), ont estimé avoir entretenu correctement leur immeuble alors que les deux allées situéses côté Calas, (...), auraient été à leur avis négligées dans leur entretien." in Ibidem.

procedure, while 5 were against it. However, among those in favour, some had certain reservations: "5 people wanted only the protection of the outside [of the building], one of the outside and the common spaces, [and] two people only accept the classification measure provided that the side *Calas* was also protected"[184]. Between the ones opposed "some considered that the maintenance of the building was provided by their care until that day, without exterior help and [thus, saw] no justification for a change, (…), [as well as] others fear the effect of restriction and limitation that could result from a measure of protection"[185].

Regarding the *SI Miremont-Les-Crêts D*, on November 24th 2000, the company Serimo wrote to the DPS saying that, "from previous exchanges of correspondence, (…), [they] had been able to realise that these buildings presented a certain interest mainly at the architectural level"[186], therefore asking for some complementary information, mostly on a legal and juridical basis, in order to "be able to give a favourable notice"[187] to the classification demand – once "the owner of the two alleys [side *Calas*] was an investment fund whose main obligation was assuring a simple, rigorous and transparent management"[188]. The department answered on December 19th 2000, clarifying the questions posed by the company Serimo.

03.1.5.5 The *Ville de Genève* and the CMNS's favourable notices for the classification

With a favourable notice to heritage classification obtained from the co-owners, the complex particularity of the procedure's first phase – which obliged the DPS to commission a specifications study – was then completed. From this moment on, the procedure could continue as normal.
Thus, on May 17th 2001, the process's file – containing all the documents exchanged between the competent authorities, as well as with the co-owners during the past two years – was forwarded to the *Ville de Genève*[189], in order to obtain its advice on the building's heritage classification, and on the protection measures to apply.

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184 "5 personnes souhaitent un classement de l'extérieur seulement, une de l'exterieur et des espaces communs, deux personnes acceptent un classement à condition que la partie Calas soit également classée." in Ibidem, p.4.

185 "certains estiment que le maintien en l'état de cet immeuble a été assuré par leur soin à ce jour sans aide extérier et ne voient pas de justification à une modification de cet état de fait. D'autres craignent l'effet de restriction et de limitation qui pourrait résulter d'une mesure de classement." in Ibidem.

186 "Lors de nos divers échanges de correspondances, (…), nous avions pu largement nous rendre compte que ces immeubles présentent un intérêt certain au niveau architectural principalment" in DPS - letter from the company Serimo to the DPS, November 24th 2000.

187 "(…), afin de vous donner notre préavis favorable, (...)" in Idem.

188 "(…), le propriétaire des deux allées concernées était un fonds de placement «dont l'obligation principale est d'établir une gestion simple, rigoureuse et transparente »" in DPS – *Note relative à la demande de classement de l'immeuble Miremont-le-Crêt*, May 17th 2001, p.4.

189 The city of Geneva - where the apartment building Miremont-le-Crêt is located - which is one of the municipalities of the Canton of Geneva.

The administrative council of Geneva answered the DAEL, on July 4th 2001, "notice[d] favourably to the classification of the buildings" [190] that constitute the *Miremont-le-Crêt*.

It justified the adoption of this measure as "desirable to ensure, in satisfactory condition, the protection of a building, (…), [of such] outstanding qualities"[191]. Moreover, according to the advice issued by the city municipality, the classification measure "should include the whole building, its structure and its surroundings"[192].

Furthermore, it was also stated in the notice that "as proposed by the DAEL, the specifications should be an integral part of the conditions"[193] of the protection measure, once they allow to identify "the most sensitive elements and eligible intervention modalities, (…), serv[ing] as a technical reference, (…), in the studies and decisions related to [future] restoration and adaptation works"[194].

In the same way, on its final meeting concerning the classification procedure – which took place on August 28th 2001 – the CMNS also issued a favourable notice to the heritage listing of the apartment building *Miremont-le-Crêt*.

Highlighting the fact that "the buildings that constitute the complex *Miremont-le-Crêt* present clearly an exceptional interest"[195], the CMNS final advice defended that "the classification [should] cover the entire building (interior and exterior)"[196], therefore demanding the extension of the classification measure to the typological elements of the building. It sustained as well "the utility of establishing [the building's] specifications, precising the rules to respect on possible [future] interventions"[197].

03.1.5.6 *Miremont-le-Crêt*: cantonal monument (2002)

Finally, on February 20th 2002, by a decree of the Council of State, the apartment building *Miremon-le-Crêt* was declared a cantonal monument.

The heritage classification statute issued by the State of Geneva contemplates all five buildings that constitute the apartment building *Miremont-le-Crêt*, namely, the three buildings side *Miremont (8 ABC avenue de Miremont)* and the two side *Calas (5-7 avenue de Calas)*.

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190 "(...), préavise favorablement le classement des bâtiments, (...)" in Ville de Genève - letter to the DAEL, July 4th 2001.

191 "(...), souhaitable afin d'assurer, dans des conditions satisfaisantes, la protection d'un édifice, (...), qualités exceptionnelles" in Idem.

192 "(...), devrait comprendre l'ensemble formé par le bâtiment, sa structure et ses abords, (...)" in Ibidem.

193 "Comme le propose le département de l'aménagement, de l'équipement et du logement, un cahier des charges devrait faire partie intégrante des conditions" in Ibidem.

194 "(...), les éléments les plus sensibles et les modalités d'interventions admissibles, (...), faire de référence technique, (...), dans les études et décisions relatives aux travaux de restauration et d'adaptation, (...)" in Ibidem.

195 "Les immeubles qui constituent le batiment Miremont-le-Crêt présentent à l'évidence un intérêt exceptionnel." in DPS - Séance verbal CMNS, August 28th 2001.

196 "Le classement porte sur l'ensemble du batiment (interieur et exterieur)." in Idem.

197 "(...), utile d'etablir un cahier des charges précisant les interventions possibles et les règles à respecter." in Ibidem.

Moreover, the protective measures assigned to the building comprised, besides its exterior envelope, "the exterior spaces of the parcels, as well as the common areas on the ground floor of the buildings, (…), [plus covering] the stairwells, as common parts [of the buildings], and the original typology of the apartments"[198].

The question of extending the classification measure to the interior typology of the apartments was severely criticised by many of *Miremont*'s co-owners, however, obtaining favourable notices from both the *Ville de Genève* and the CMNS, as well as the support of other professionals and associations in the field.
Although in some apartments, certain "alterations or modifications of significant elements"[199] of the building's original design had already been made -"sometimes even differentiated from an apartment to another"[200] – the Council of State decided to extend the protection measure to the inner parts of the apartments. Therefore, the adopted solution "prevented additional changes to [their] character and their characteristic elements, such as partitions, flooring, etc."[201] However, the issued notice does not "exclude a margin for discussion between co-owners willing to realise certain changes to their apartments and [the competent] authorities, (…), which in the mentioned circumstances [should] weigh the existing interests, taking into account the legitimate interests of the co-owners, and respectively, the necessities arising from the protection of heritage"[202].

In addition, the issued decree also mentioned that regarding "any future heavy restoration that could be implemented to ensure the sustainable protection of the building *Miremont-le-Crêt*"[203] the authorities in charge of licencing "should take into account, as far as possible, the recommendations made in the study published in the magazine *Patrimoine et architecture*" for interventions concerning "the building's collective spaces and façades".

In conclusion, this status of monument obtained by *Miremont-le-Crêt* entails a particular reflexion in the case of a rehabilitation intervention, where the objective searched must be the maintenance of

198 "(...), des espaces extérieurs des parcelles ainsi que des locaux communs du rez-de-chaussée desdits bâtiments, (...). Les cages d'escalier, en tant que parties communes, et la typologie original des apartements." in Arrêté du Conseil d'État, February 20th 2002, p.4.
199 "(...), des transformations ou des modificatios d'éléments significatifs, (...)" in Idem, p.3.
200 "(...), parfois différenciées d'un appartement à l'autre, (...)" in Ibidem.
201 "(...), éviter que des altérations supplémentaires ne soient portées au caractère intérieur des appartements et de leurs éléments caractéristiques, tels que distribution des pièces, cloisons, parquets, etc., (...)" in Ibidem.
202 "(...), n'exclut pas une marge de discussion entre les copropriétaires qui souhaiteraient procéder à certains aménagements de leur appartement et les autorités, (...), dans les circonstances mentionnées, d'opérer une pesée des intérêts en présence, qui tienne compte des intérêts legitimes des copropriétaires, respectivement, des nécessités découlant de la protection du patrimoine, (...)" in Ibidem, p.3.
203 "(...), d'éventuels travaux de restauration lourds qui pourraient être exécutés, afin d'assurer la protection durable du bâtiment Miremont-le-Crêt, (...), tenir compte, dans toute la mesure du possible, des recommandations faites au terme de l'étude publiée dans la revue Patrimoine et architecture, (...), des espaces collectifs et des façades de l'immeuble" in Ibidem.

the building's original architectural substance.

However, in the event of a building like *Miremont*, whose design and construction made appeal to new technologies and materials based on a range of industrial production, a possible intervention also raises the question of a rehabilitation based on the concepts of authenticity and reversibility.

Therefore, a future intervention of renovation for the apartment building *Miremont-le-Crêt* should be guided by a constant research for new and open approaches, allowing their adaptation to each particular situation.

03.2 The apartment building *Miremont-le-Crêt*: the rehabilitation intervention (2010-2014)

03.2.1 The actual condition of the building

The first inventory on the present condition of *Miremont-le-Crêt* was conducted by the architecture office Devanthéry and Lamunière in 1999.

As previously mentioned, this investigation was commissioned by the *Direction du Patrimoine et des Sites* as part of the apartment building's ongoing heritage classification procedure. Although with the main objective of establishing the specifications for a future rehabilitation, it also produced a detailed evaluation of the building's condition at the time – which did not change significantly in the last years.

Apart from "the perception of the building on site"[204], the architects' researches were also based on the existent documents and original drawings of *Miremont*, deposited at the Saugey's Archives[205]. In fact, those were, "despite their pronounced state of degradation, an essential basis for the [detailed] drawings included in [the] study"[206], as well as the understanding of the building's original construction details.

A summary of this survey, particularly focused on *Miremont*'s façades and collective spaces, was published, the following year, in the architecture journal *Patrimoine et architecture*.[207]

Later, in 2006, the architecture office Oleg Calame architect started to redraw, on a computer basis, *Miremont*'s original plans. This work, commissioned by the co-ownership *8 ABC avenue de Miremont,* lasted until 2010, resulting in the complete and detailed documentation of the building's original construction.

The diagnosis of the building's condition was completed, between 2010 and 2011, through a meticulous analysis of the current state of its apartments. Mandated by the *Office du Patrimoine et des Sites*, this work was also developed by Oleg Calame's office.

Note: The following descriptions on *Miremont-le-Crêt*'s condition are based on both the Devanthéry and Lamunière's article "Sauvegarder Miremont-le-Crêt?", and on the interviews with Mr. Oleg Calame[208] and Ms. Laurence Boyé[209].

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204 "(...), la perception de l'édifice sur le site, (...)" in Ibidem.

205 The Saugey's Archives are deposited in the IAUG. And, the referred original drawings were also consulted during the present work. Some of them are gathered in the attachments of this work.

206 "(...), malgré leur état prononcé de dégradation, constituent la base essentielle des relevés qui figurent dans notre étude." in Patrick Devanthéry; Inès Lamunière – op. cit., p.13.

207 Cf. Patrick Devanthéry; Inès Lamunière – op. cit., pp.19-28.

208 Interview with Mr. Oleg Calame, May 8th 2014.

209 Interview with Ms. Laurence Boyé (Maa), April 4th 2014.

03.2.1.1 A general perspective on the building's condition: differences *Miremont* – *Calas*

The apartment building *Miremont-le-Crêt* consists of a single housing unit displaying however two separate parts, each with a different address. This subdivision, already described in the section *03.1.2 The building: project and construction*[210], comprehends "the side *Miremont*, that includes the entries [to the buildings] A, B and C, and the side *Calas*, where are located the entries [of the buildings] D and E"[211]. Their addresses are, respectively, *8 ABC avenue de Miremont*, and *5-7 avenue de Calas.*

Consequently, this established morphologic and administrative partition also had its reflexes on the building's land situation and, accordingly, on its management[212]. Thus, the side *Miremont* (Northeast) constitutes a co-ownership where 40% of the apartments have a rental status[213], whereas, the side *Calas* (Southwest) is hold by an investment fund, which rents all the apartments. The coexistence of these two different situations has led to opposing attitudes on both parts of the building regarding its maintenance and, therefore, both display very distinct preservation conditions.[214]

133. Hall on the side *Miremont* (n.d.)

210 Cf. p.84-85..

211 "(...), le côté Miremont, qui comprend les entrées A, B, C et le côté Calas, où se trouvent les entrées D, E." in Patrick Devanthéry; Inès Lamunière – op. cit., p.19.

212 Cf. p.105.

213 Cf. Claire Maillet et al. - *Miremont-le-Crêt, un projet de sauvegard douce*, report for the course *Construction et durabilité VII*, EPFL, (not published), 2012-2013, p.10.

214 Cf. Patrick Devanthéry; Inès Lamunière – op. cit., p.19.

In fact, the side *Miremont* has been continuously subject to maintenance operations, promoted by the co-ownership, and therefore the building's constructive elements are better preserved. These conservation works were conducted both on the building's façades and on its common areas. Although minor interventions, some have introduced certain changes to the original appearance of the building.

Correspondingly, on the exterior, these maintenance works included the jet cleaning of the façade's prefabricated concrete panels[215] and the repainting of the pine wood window frames[216]. On the other hand, inside the entrance hall, the terrazzo flooring "was partially rebuilt and re-polished in a very nice way"[217], twenty years ago[218], whereas the metallic window frames were repainted in 1997[219]. The plaster of the walls was also rebuilt and repainted, however, in some walls the original colours were changed – "as for example the change to white of the original bordeaux covering the wall behind the stairwell A, (…), which dissimulated by its dark colour, had the function of highlighting the openness of the entrance."[220].

Over the years, many of the apartments on the side *Miremont* were also the object of renovation operations, some of them quite extensive. Evidently, each co-owner intervened differently inside his own apartment; nevertheless, some kinds of transformations are recurrent throughout the building. Those concern mainly modifications in the kitchens – which no longer corresponded to the actual needs, and thus, had to be adapted – as well as the demolition of some interior division walls – specially the one separating the kitchens (that originally were very small, with areas ranging from 5m^2 to 7m^2) from the living areas. In addition, certain apartment's bathrooms were also updated.[221]

Besides, some large transformation interventions were also made to a few apartments, even though they were obviously less frequent. These included the conversion of adjoining apartments (that belonged to the same owner) into a single, bigger (and usually traverse) apartment. This type of intervention in the typology of the apartments was the one promoting most significant changes – such as the transformation of one of the kitchens into a bathroom.[222]

On the other hand, the building's side *Calas* has never been subject to any special preservation operation, apart from the usual maintenance – which was naturally a consequence of the apartment's

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215 Cf. Claire Maillet et al. – op. cit., p.10.

216 Cf. Idem.

217 "(...),il a été partiellement refait et a été repoli (...) de très belle manière." in Patrick Devanthéry; Inès Lamunière – op. cit., p.20.

218 Cf. Patrick Devanthéry; Inès Lamunière – op. cit., p.25.

219 Cf. Idem, p.25.

220 "(...), comme par exemple la modification en blanc du bordeaux d'origine qui recouvrait le mur du fond de l'entrée A, (...), et qui avait pour fonction, en se dissimulant par sa couleur foncée, d'accentuer l'ouverture de l'entrée, (...)" in Ibidem, p.20.

221 Interview with Ms. Laurence Boyé (Maa), April 4th 2014.

222 An example of a transformation of this kind is represented in the type floor-plan provided by the architecture office Maa; Interview with Ms. Laurence Boyé (Maa), April 4th 2014.

rental status. As a result, both the original constructive elements, as well as the apartment's initial typologies kept their original appearance. Therefore, the buildings on the side *Calas* are good testimonies of the original condition of *Miremont-le-Crêt*; nonetheless, the lack of maintenance also deplored the damages linked to the aging of the building, and necessarily, this side needs more extensive renovation works.

03.2.1.2 The ground floor: detailed condition

Generally, the entrance hall on the side *Calas* needs more rehabilitation works than the hall on the side *Miremont* – which was better maintained over time. However, on the *Miremont*'s hall, renovation works on the interior walls altered some of their original colours, whereas, on the side *Calas*, the walls never went through extensive conservation operations and, therefore, are "closer to the original state"[223]. As a consequence, chromatic analysis on the interior walls of the *Calas* hall would allow determining their original colours and restoring the genuine appearance of both entrance halls.

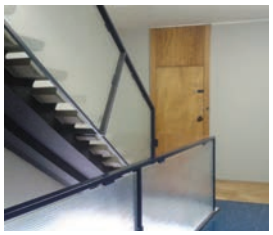
134. Hall on the side *Calas* (May 8th 2014).

135. Hall on the side *Miremont* (n.d.).

136. Cracks and spots on the inner terrazzo flooring. Hall *Calas.* (April 4th 2014).

As mentioned earlier, *Miremont*'s inner terrazzo flooring is well preserved, as a result of recent renovation works, while on the side *Calas*, the existence of some cracks demands rebuilding and re-polishing works.

Both halls' false ceilings are in good condition, even if "presenting some irregularities on their surface"[224]. All stairwells have also conserved their original aspect, but "the preservation of the linoleums, handles, doors and stairways should be guaranteed"[225].



137. Stairwell of the building 8A (May 8th 2014).

223 "(...), est plus proche de son état d'origine" in Patrick Devanthéry; Inès Lamunière – op. cit., p.19.

224 "(...), présentent quelques irrégularités de surface" in Idem, p.23.

225 "(...), la préservation des linoléums, des portes et poignées, des rampes d'escalier devrait être garantie." in Ibidem, p.19.

138. Cracks and fragments around a pillar (April 4th 2014).

139. Several cracks and fragments on the exterior flooring. Outside the *Calas'* hall (May 8th 2014).

140. Band of vegetation plugged with cement. Outside the *Calas'* hall (May 8th 2014).

Outside the entrance halls, the passage connecting to the adjacent streets shows some extensive damages. The flooring, also a terrazzo – although with a ruff finishing – "presents numerous cracks and fragments, especially around the pillars"[226], as well as "important joints [and some evident] differences in texture"[227]. In addition, some signs of aging also start to appear in the exterior mural painting, from Louis Bongard. Hence, a chromatic analysis on this wall would also allow the identification of the painting's original colours and, consequently, the elaboration of a renovation project.

141. Former water basin filled with earth. Outside the *Miremont's* hall (May 8th 2014).

226 "(...), présente de nombreuses fissures et des éclats, notamment au pied des colonnes." in Ibidem, p.20.
227 "(...), des joints importants, des différences de texture, (...)" in Ibidem, p.20.

Furthermore, some circles and bands of vegetation present in the drawing of the floor - and creating continuity between the exterior and the interior of the hall – "were plugged with cement,(…), for practical reasons of passage"[228]. Also the long flowerbed of pink hydrangeas (outside the *Miremont* hall, underneath the mural painting) that provided "the effect of spatial continuity, (…), by crossing the glazing wall of the hall"[229] was partially covered, for the same reason. Besides, the exterior water basin (outside *Miremont*'s hall) was as well "filled with earth for obvious utilitarian reasons"[230], not long after the achievement of *Miremont-le-Crêt*.

142. Circle of vegetation plugged with cement. Outside the *Calas'* hall (May 8th 2014).

The breezeways, on the side *Miremont,* were recently the object of some renovation works, however, it is important to refer they "require nearly-permanent maintenance, once they constitute [extremely] fragile constructive elements"[231]. Nonetheless, a change was made, during their last restauration: the banner, originally black "to accentuate the thickness of the slab"[232] was painted grey. On the side *Calas*, the creep of the breezeways' slab is strongly marked, since "it suffers from water infiltration - which caused cracks"[233]. The bottom of the slab is covered with moss and additionally, "the metallic pillars are highly rusted and [their] fixing plates are often released"[234].

Miremont-le-Crêt's original lighting devices still exist and are well preserved – "contribut[ing] to the quality of the design of the collective spaces"[235] of the building. However, some "damaged or missing plastic grids"[236] must be replaced.

143. Breezeway on the side *Calas*. Banner still in the original colour (May 8th 2014).

144. Breezeway on the side *Miremont* (May 26th 2014).

145. Breezeway on the side *Miremont*. Banner's colour changed to grey (n.d.).

228 "(...), ont été rebouchés avec du ciment, (...), pour des raisons practiques de passage, (...)" in Ibidem, p.20.
229 "(...), l'éffet de continuité spatiale, (...), qui traversait le vitrage du hall, (...)" in Ibidem.
230 "(...), a été rempli de terre pour d'évidentes raison utilitaires, (...)" in Ibidem.
231 "(...), consiste en un entretien quasi permanent de cet élément constructivement fragile, (...)" in Ibidem, p.23.
232 "(...), pour affiner l'épaisseur de la dalle." in Ibidem, p.20
233 "(...), il souffre d'infiltration d'eau, ce qui a provoqué des fissures, (...)" in Ibidem.
234 "Les pilliers métalliques sont fortement rouillés et les plaques de fixation sont souvent dégagées." in Ibidem, p.23.
235 "(...), contribue à la qualité du design des espaces collectifs, (...)" in Ibidem.
236 "(…), les grilles en plastic abîmées ou disparues, (…)" in Ibidem.

146. 147. Lighting devices on the entrance on the side *Miremont* and under the breezeways (May 26th 2014).

148. Lighting devices on the entrance on the side *Calas*. Moss under the breezeway (May 8th 2014).

149. Lighting devices on *Miremont's* hall (May 8th 2014).

03.2.1.3 The façades: detailed condition

The building's façades on side *Miremont* are generally well preserved, as regular maintenance and occasional renovation works were assured, however presenting some signs of aging. On the side *Calas*, where the same care was not provided, the façades' constructive elements are in worse condition.

The prefabricated concrete panels constitute an exception to this norm. On the side *Miremont,* they were recently subject to a water jet cleaning, having thus a better superficial appearance; however, this maintenance operation has instead accelerated their deterioration process. The resulting carbonisation of concrete is causing the burst of the slabs' edges[237] and thus, the steel frameworks exposed to the air show signs of corrosion[238]. This process is also evident on the side *Calas*, where the panels also present several cracks and fragments, although in a less advanced stage.

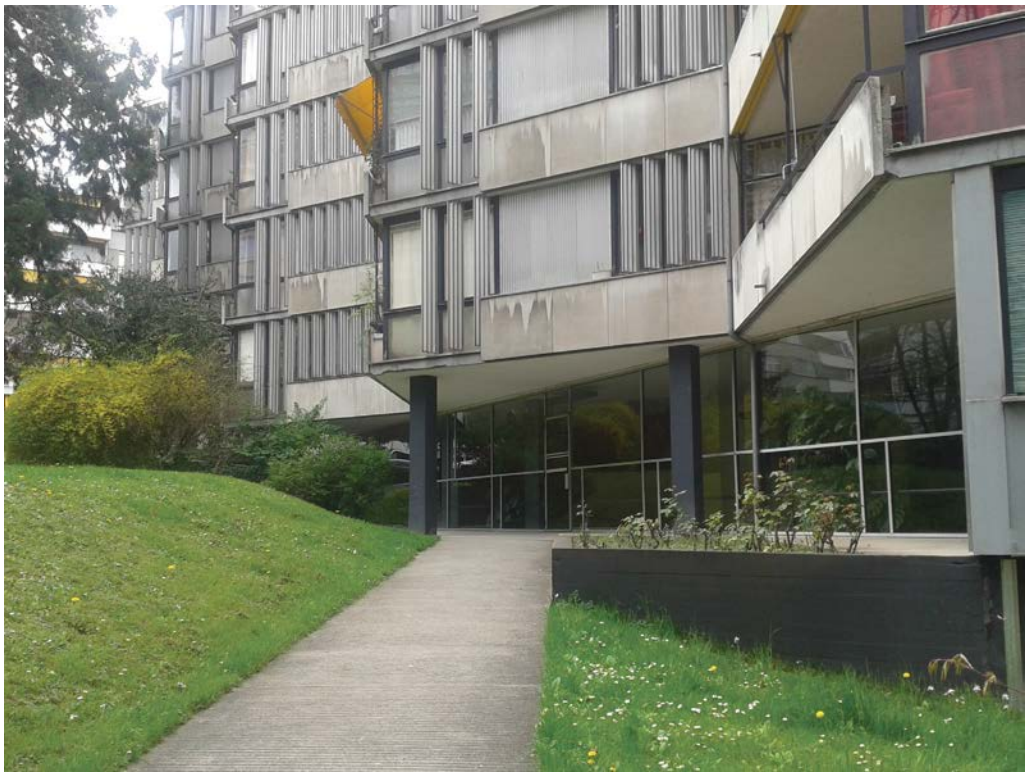
In many apartments, the wired glass parapets were replaced by solid elements[239] or occasionally by a single normal glazing. The remaining original ones present some cracks and certain are even broken. Moreover, on the side *Miremont*, their original steel frames, painted blue, were replaced by new ones in stainless steel[240], whereas on the side *Calas* these are still the original ones, being thought in a very bad condition.

The majority of the aluminium panels and *brise-soleils* "have kept their original appearance"[241], nonetheless, the inner rod of the *brise-soleils*' fixations, made of steel, is corrugated[242]. Additionally,

237 Cf. Ibidem, p.27.
238 Cf. Ibidem.
239 Cf. Ibidem, p.25.
240 Cf. Ibidem.
241 "(...), ont gardé leur apparence d'origine" in Ibidem, p.24.
242 Cf. Ibidem, p.25.

some of the ground-floor *brise-soleils*, as well as "certain metal bars, supporting the balconies' blinds have bended, probably due to a deformation of the slab"[243]. In the attics, on the side *Calas*, the former existent *brise-soleils* were removed.

Pine window frames are fragile because of their relatively narrow section, thus "showing a lack of rigidity, [when the pieces] go from the floor to the ceiling"[244] – this weakness in particularly damaged in the window frames overlooking the balconies, which are not reinforced. The existing single glazing windows – on a building with almost completely glazing façades – cause "overheating in the summer and loss of heat in the winter"[245] and does not contribute to the comfort of the building's inhabitants. Finally, some of the blinds' canvas, originally yellow, were replaced by tissues with different colours[246], distorting the original image building.



150. 151. Southeast façade (May 26th 2014). Northwest façade (May 8th 2014).

243 "(…), certaines barre métalliques, support des stores sur balcon, ont fléchi, sûrement à cause d'une déformation de la dalle." in Ibidem.

244 "(…), présentent un défaut de rigidité, lorsqu'elles vont du sol au plafond." in Ibidem, p.28.

245 "(…), la surchauffe en été que le rayonnement de froid en hiver, (...)" in Ibidem.

246 Cf. Ibidem, p.27.

03.2 Towards the rehabilitation intervention

Following the heritage classification procedure, which ended with the listing of *Miremont-le-Crêt* as Cantonal monument, in 2002 – and from which also resulted the constitution of the specifications for a future renovation – it was only in 2010 that the decision was made to restore *Miremont*.
More than 50 years after the achievement of its construction, the apartment building – whose "envelope, [as well as technical elements] had never been subject to any renovation, apart from [their] normal maintenance"[247] – was finally going to recover its former splendour.

Initiated by the co-ownership of the *8 ABC avenue de Miremont*, the decision to rehabilitate the apartment building *Miremont-le-Crêt* was motivated by recent water damages in the building, as well as the inhabitants' desire to meet a satisfying thermal comfort in their apartments. However, in the beginning of this process, the co-owners did not intend a complete renovation of the building's façades, but rather the adequate treatment of the elements that most affected their daily comfort.[248]
Consequently, once the building was listed as heritage, the *Office du Patrimoine et des Sites* had to be contacted, and with it support, the co-ownership sponsored a competition (under invitation) to encounter the most appropriate solutions for the renovation of *Miremont*. Taking place between 2010 and 2011, this competition was won by the Geneva based architecture office Meier+associés architects.[249]
However, at the same time, another architecture office was undertaking an extensive survey on the present condition of the building's apartments, commissioned by the *Office du Patrimoine et des Sites*. This office – Oleg Calame Architect – had also been involved in the update of the building's original drawings, since 2006.[250] Therefore, considering its vast knowledge of the building, original and current state, it was invited to become a partner of the Maa in *Miremont*'s rehabilitation intervention.[251]
Later that year, the investors that hold the *5-7 avenue de Calas*, also got interested in the renovation mandate and decided to become part of it. This way, the building's side *Calas* was also included in the ongoing rehabilitation project.
Finally, with the advice of the OPS, *Miremont-le-Crêt*'s co-owners decided to reformulate the original objectives of the rehabilitation intervention and develop instead a global renovation project for the apartment building. As a result, an intervention comprehending the whole building would "answer

247 "Son enveloppe n'a pas fait l'objet de rénovation jusqu'à present, à part de l'entretien usuel", in Meier+associées architectes's website – project information. Available at:
http://s3.amazonaws.com/maa-prod-usa/pdf_documents/649/341_miremont_FR_CS5.pdf?1410275284-tab [19.09.2014].
248 Cf. Claire Maillet et al. – op. cit., p.11.
249 Cf. Meier+associées architectes's website – project information.
250 Cf. p.112.
251 Cf. Meier+associées architectes's website – project information.

both the inhabitants' demands and the conditions of safeguard of a listed building"[252].

Consequently, the rehabilitation project of the apartment building *Miremont-le-Crêt* was developed by the architecture office Meier+associés architectes, between 2011 and the beginning of 2014. With a surface area of 8 200 m^2 and a construction volume of 24 000 m^3, its programme comprised primarily the renovation of its façades, including, however, the introduction of other technical ameliorations in the building[253] – the renewal of both piping and ventilation systems, the optimal insulation of the roof and the installation of solar panels for pre-heating of domestic water.
The project counted with the participation of the following collaborators from Maa: Laurence Boyé (project leader), Marie Veillet, Arnaud Mottet, Antonio Martin Prieto and Nicolas Dubois.[254]; along with the contribution of the specialized companies: Amsler Bombeli & associés (civil engineering), SB Technique SA (heating and ventilation engineering), DSSA Dumont Schneider SA (electrical engineering), Shumacher Ingénierie SA (sanitary engineering), orqual SA (fire safety engineering), Bonnard et Gardel ingénieur-conseil SA (asbestos expertise) and alterego concept SA (asbestos control).[255]

03.3 Meier+associés architectes' approach: principles of intervention

As above mentioned, *Miremont-le-Crêt*'s rehabilitation intervention is essentially linked to the enhancement of its inhabitants' comfort. Therefore, to attain satisfying temperature conditions inside the apartments, without an excessive waste of energy, the building's exterior envelope must be submitted to a significant thermal improvement.
It is important to note that any transformation of this kind has to respect the maximum values of heat loss imposed by the regulations in force. According to the Geneva legislation on energy[256] – more precisely the standard SIA 380/1 – these values must be equal or inferior to 120 $MJ/m^2.year$[257], both in new constructions and renovations.

With this requirement in mind, a firm of heating engineers – SB Technique SA – was hired to evaluate *Miremont-le-Crêt*'s heat balance. Based on the building's actual consumption, they were able to quantify its annual heat losses in 580 $MJ/m^2.year$.[258]
In addition, they also developed a thermal model of the building, which enabled the measurement of *Miremont*'s real heat losses, and, the results obtained were very similar to the ones already

252 "(...), qui puisse répondre à la foix aux demandes des habitants et à des conditions de sauvegarde et de mise en valeur de ce bâtiment classé" in Claire Maillet et. al. – op. cit., p.11.
253 Cf. Meier+associées architectes's website – project information.
254 Cf. Idem.
255 Cf. Ibidem.
256 The referred legislation includes the *Loi sur l'énergie* and the *Règlement d'application de la loi sur l'énergie*.
257 Value provided by the architect Ms. Laurence Boyé (Maa), in an interview on April 4th 2014.
258 Idem.

calculated. This model also allowed them to determine the most fragile elements of the building, in terms of thermal performance. In accordance with the analyses executed, "the numerous glass surfaces of *Miremont-le-Crêt* represent approximately 70% of its entire thermal losses"[259]. Therefore, they must constitute the strategic point of the apartment building's rehabilitation intervention.

As a result, the architects concluded that obtaining a heat loss complying with the SIA standard would require a pack of solutions capable of reducing *Miremont*'s energy losses to less than half of the present values. Such a renovation intervention would imply the replacement of the existent single glazing by a triple glazing, as well as the complete insulation of the building's exterior elements – including the balconies' slabs – in order to remove every existent thermal bridge.[260]

However, a rehabilitation project of this nature was not in accordance with the principles of renovation of existing buildings, and would contribute to denaturize the particular materiality and image of a heritage listed building.

Therefore, the architects requested the competent authorities' derogation from the SIA standard, arguing that such a special dispensation was the only way of allowing a respectful intervention on the existing building and its elements. A joint meeting between the architecture office, the *Office du Patrimoine et des Sites* and the *Office Cantonal de l'Énergie*, allowed to reach an agreement and fixe a special limit of heat losses for *Miremont-le-Crêt* – 200 MJ/m^2.year.[261]

Nevertheless, the rehabilitation project developed by the office Meier+associés architectes will allow the building to attain thermal losses of 160 MJ/m^2.year[262] – a very satisfying result for a building "presenting a great development of glazing façade, balconies generating significant thermal bridges, and whose construction dates from a time when the standards were much inferior"[263] than the actual ones.

In order to achieve such values, the rehabilitation solutions proposed by the architects had to be primarily focused on the most critical elements of the building, in terms of thermal performance. Already identified by the heat engineers, those included largely *Miremont*'s façades, and more particularly its glazing surfaces.

This way, the architects aimed for "a minimal intervention, in compliance with Saugey's spirit, and to maintain the existing substance, whenever possible"[264]. Therefore, instead of attempting to renovate, in detail, the whole elements of *Miremont*'s façades, they rather decided to operate only in the most delicate ones, in a very efficient way. This adopted *modus operandi* will prevent the newly renovated

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259 "(...), les nombreuses surfaces vitrées représentent environ 70% des déperditions thermiques." in Claire Maillet et al. – op. cit., p.12.

260 Cf. Ibidem, p.11.

261 Cf. Claire Maillet et al. – op. cit., p.12.

262 Value provided by the architect Ms. Laurence Boyé (Maa), in an interview on April 4th 2014.

263 "présentant un grand développé de façade vitrée, des balcons engendrant d'importants ponts thermiques et donc la construction date d'une époque où les normes étaient bien inférieurs, (...)" in Claire Maillet et al. – op. cit., p.36.

264 "L'intervention se veut minimal, dans le respect de l'esprit de Saugey, et en maintenant la substance existante, lorsque cela est possible." in Meier+associées architectes's website – project information.

constructive elements of becoming prematurely obsolete.

Therefore, the rehabilitation intervention foresees the replacement of all the building's single glazing, (and the consequent reinforcement of their window frames), the substitution of the balconies windows' opaque parapets by a more performant solution (also free of asbestos), as well as the addition of an insulation layer to the aluminium façade sections. However, in order to preserve the building's original substance, both the prefabricated concrete parapets and the wired glass ones, were not subject to any thermal improvement.

As a result, by "pick[ing] up the very fine details executed at the time, [and simultaneously] taking into account the new energy comfort standards"[265], the architects were able to reach solutions in compliance with *Miremont*'s original image and materiality.

Furthermore, the approach adopted in the renovation of the building's thermal elements prioritizes the execution of the works on the outside of the building, rather than the inside, in order to avoid future condensation problems.

Apart from the façades, the Maa's project, also envisages renovation works for other elements of the building's exterior envelope, "to further improve the technical performance required by legislation in force"[266]. Those include both the optimal insulation of the roof, as well as the ground-floor's ceiling. Moreover, "the roof [will as well] become the support of solar panels for pre-heating of domestic water"[267], a device also required by the applied energy regulations.

Some renovation works are also planned to other parts of the building, although with no influence on the building's heat balance. Most of these works were requested by the co-owners, in order to improve their comfort or ameliorate the visual image of the building – having "a strong psychological aspect on the client or the inhabitants who are particularly anxious to see direct improvements"[268].

Answering the client's request, the building's piping systems are going to be totally refurbished, including the alteration of "the positions of the descents of clear waters modified to no longer be mixed with sewage"[269]. In addition, the ventilation system, which contained asbestos, is also going to be remodelled.

Apart from these two major operations, these renovation works also foresee the treatment of the carbonation on the prefabricated concrete panels and the gable-end façades, as well as the restore of the aluminium *brise-soleils*, panels, and respective fixations.

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265 "Le projet de rénovation reprend donc les détails très fins exécutés à l'époque, tout en tenant compte des nouvelles normes de confort énergétique." in Idem.

266 "Afin d'améliorer encore les performances techniques requises par la législation en vigueur, (...)" in Ibidem.

267 "(...), la toiture devient support de panneaux solaires pour le pré-chauffage de l'eau sanitaire." in Ibidem.

268 "(...), un aspect psychologique fort vis à vis du client ou des habitants qui sont particulièrement désireux de constater des améliorations directes." in Claire Maillet et al. – op. cit., p.12.

269 "(...), les positions des descents d'eaux claires sont modifiées afin de ne plus être mélangées avec les euax usées.", in Meier+associées architectes's website – project information. This alteration is required by the Geneva legislation in force.

Finally, it is also important to refer that – although not always evident – some innovative solutions, only produced by few companies, are going to be applied in *Miremont-le-Crêt*. As claimed by the architects, "the principle of «changing the skin» allows, in respect of the work, the introduction of new technologies, in the case of a reflection on the building's thermal performance, (…), [and] as the Venice Charter says: «when traditional techniques prove inadequate, the consolidation of a monument can be ensured by using all the modern techniques of conservation and construction whose effectiveness has been demonstrated by scientific data and guaranteed through experience»"[270].

All these solutions are described in detail in the following section.

03.4 The details of *Miremont*'s rehabilitation intervention

Note: the following descriptions are based on both the interviews with the architect Ms. Laurence Boyé, leader of *Miremont*'s renovation project, as well as on the detailed drawings of the building provided by the architecture offices Meier+associés and Oleg Calame. The interviews with Ms. Laurence Boyé took place on April 4th 2014, at Meier+associés architects' office, and on May 5th 2014, during a visit to *Miremont*'s construction site.

03.4.1 Piping and ventilation systems

Although essentially linked to the improvement of the inhabitant's comfort, and thus mainly focused on the renovation of the building's envelope, the rehabilitation of *Miremont-le-Crêt* was, as well, motivated by recent water damages in the building.[271] Therefore, to solve the existing problems and avoid future water infiltration, the client also requested the renewal of the building's piping system.

The experts' advice suggested that the system's reconditioning works should include the substitution of both water-supplying pipes and drain pipes, inside the apartments.
Nonetheless, when a building is subject to works that affect its piping system, the legislation of the Canton of Geneva demands the creation of two separate vertical drain pipes – one for wastewater and the other for stormwater.[272] Moreover, in order to anticipate future works in the neighbourhood, this imperative is valid even when separated sewers do not exist in the adjacent road – as it is the

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270 "Le principe du «changement de peau» autorise, dans le respect de l'oeuvre, d'y introduire de nouvelles technologies, en l'occurrence une réflexion sur la thermique du bâtiment, (...), comme le dit la Charte de Venise: «Lorsque les techniques tradicionnelles se révèlent inadéquates, la consolidation d'un monument peut être assurée en faisant appel à toutes techniques modernes de conservation et de construction dont l'efficacité aura été démontrée par les données scientifiques et garanties par l'expérience»." in Meier+associées architectes's website – project information.

271 Cf. p.120.

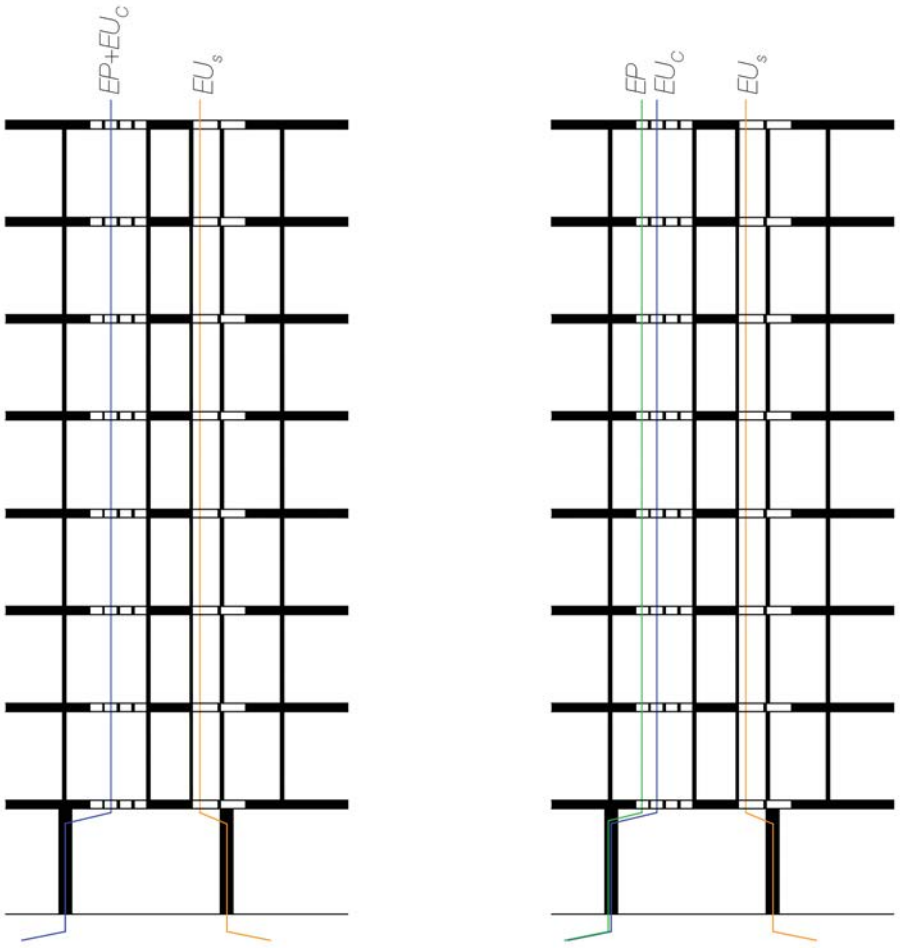
272 Cf. *Loi sur les eaux* and *Réglement* and *Règlement d'exécution de la loi sur les eaux* of the *Etat de Genève.* Available at: http://www.ge.ch/legislation/rsg/f/s/rsg_l2_05.html and https://www.geneve.ch/legislation/rsg/f/s/rsg_L2_05P01.html [01.10.2014].

case for *Miremont*.[273]

Presently, the apartment building's kitchens and bathrooms have independent vertical drain pipes. And although the bathrooms' drain pipes only carry wastewater, both wastewater from the kitchens and stormwater from the roof are carried by the same drain pipes crossing the building at the level of the kitchens. On the ground floor, most of these drain pipes are embedded in the walls. However, some, closer to the Southeast façade, go through the hall inside circular "false columns" – these are easily mistaken with the building's structural pillars, although the latter have square sections.[274]

152. False columns dismantled during the rehabilitation works on the piping system. *Miremont's* hall (May 8th 2014).

The rehabilitation project foresees the creation of separated vertical drain pipes for the kitchen's wastewater and the roof's stormwater. Therefore, the kitchen's vertical drains pipes are going to be maintained in the same position, conserving only the function of draining the wastewaters from the kitchens. Whereas, a new drain pine is going to be placed in the former garbage chutes conduit – next to the lifts and no longer in use – for the drainage of stormwater. In addition, the modification of the stormwater's drainage pipes position requires also the shifting of the roof's drop shot. Therefore, in order to guarantee a suitable flow, the slope of the roof is going to be changed.



EUc - Kitchens' wastewater
EUs - Bathrooms' wastewater
EP - Roof stormwater

153. Diagram of the piping system. Left: original condition. Right: rehabilitation intervention. (Claire Maillet et al. - op. cit., p.16).

273 Cf. Claire Maillet et al. – op. cit., p.16.

274 Cf. Ibidem.

Since the all the apartments' pipes have to be replaced – requiring necessarily the opening of grooves on the walls and floorings – some of the co-owners asked the architects to redo their kitchens and bathrooms according to the original ones.

Apart from the piping system, the ventilation system – that contained asbestos – is also going to be subject to renovation works.

03.4.2 The hall

Miremont-le-Crêt's halls are heated by an ingenious solution: a false-ceiling, made of perforated steel sheets (600x600x2mm), that radiates the heat from hot water pipes located above.[275] This subtle mechanism allows the hall to maintain a comfortable temperature throughout the year, becoming this way a privileged place for the co-owners' assembly.
Nonetheless, its entirely glazed façade – consisting of single glazing (6mm thick) held on a metallic window frame[276] – has a very low thermal efficiency.

Consequently, within the frame of *Miremont*'s rehabilitation, the architects had to find a solution compatible with the requirements of the present energy standards. As a result, two different scenarios were studied: one envisioning their maintenance as heated spaces – and requiring the complete thermal insulation of the building's ground floor - and the other, foreseeing their transformation into non-heated spaces.
The first would demand to fully insulate the ground floor ceiling – both inside and outside the hall – as well as to greatly improve the thermal performance of the glazed wall. This would include the complete replacement of the existent single glazing by a thermal performant glazing and also the perfect insulation of the original metallic window frames.[277]
However, this solution would have an extremely high cost to the co-owners, if it was to achieve reasonable results in terms of energy expenses.
Thus, following the discussion with both the co-owners and the authorities of the *Office du Patrimoine et des Sites*, the architects decided to adopt the second envisioned solution, which comprehends the non-insulation of the building's ground floor.

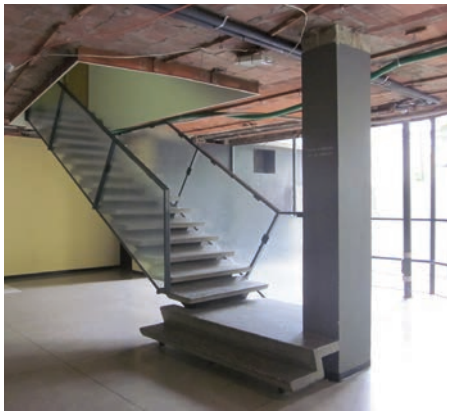
Therefore, the existent glazed façade is going to be preserved, whereas the original heating system has to be dismantled. This way, 20mm of rigid foam plus 80mm of mineral wool are going to be added to the interior ceiling, allowing the thermal insulation of the upper floors. Finally, the false-ceiling steel panels are going to be put back into place, covering the insulation layers, although no

275 Cf. Patrick Devanthéry; Inès Lamunière – op. cit., p.27.
276 Cf. Idem.
277 An initial version of this solution can be seen on a detailed drawing of *Miremont-le-Crêt*'s renovation project provided by the architect Oleg Calame (dating from January 17th 2012).

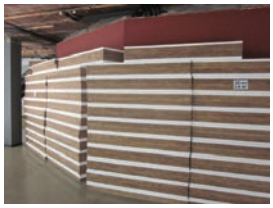
longer fulfilling their original function.[278]

Despite the decision made, the architects recognize *Miremont*'s hall important social function for its inhabitants. Thus they consider rethinking its complete insulation, in the end of the rehabilitation works, if the remaining budget allows it.

154. False ceiling dismantled. *Miremont*'s hall (May 8th 2014).



155. Condition of the staircases. *Miremont*'s hall (May 8th 2014).



156. Mineral wool insulation boards for the hall's ceiling. (May 8th 2014).

In addition, some other rehabilitation works are going to be conducted on the ground floor, both inside and outside *Miremont*'s entrance halls.

Starting with interior flooring, some of the terrazzo tiles have to be replaced, mainly due to the reconditioning works on the piping system, which require the lifting of some of them.[279] Later, in the end of the renovation works, both halls' floorings are going to be re-polished.

Regarding the interior walls, they are going to be repainted in their original colours. As mentioned before, to identify these colours, some chromatic surveys will be conducted on the side *Calas*' hall (where the plaster has never been rebuilt).[280] However, from Saugey's chromatic studies, as well as from some old pictures, the architects already know the primitive colours were less primary and more matt, than the actual ones.

Besides these, some maintenance works are also envisioned on the stairwell elements.

Moreover, the architects also conceived a project for the renovation of the exterior flooring. Many of the damaged terrazzo tiles have to be changed (some because of the works on the piping system), whereas certain are going to be repaired.[281] Also, all the circles and bands of vegetation, filled with

278 This description is based on an initial version of this solution can be seen on a detailed drawing of *Miremont-le-Crêt*'s renovation project provided by the architect Oleg Calame (dating from January 17th 2012).

279 The terrazzo tiles that need to be replaced, due to existing damages or works in the piping system, are identified on a detailed drawing of *Miremont-le-Crêt*'s renovation project provided by the architecture office Meier+associés (dating from August 26th 2013).

280 Cf. p.115.

281 The terrazzo tiles that need to be replaced, due to existing damages or works in the piping system, are identified on a detailed drawing of *Miremont-le-Crêt*'s renovation project provided by the architecture office Meier+associés (dating from August 26th 2013).

cement along the years, are going to be uncovered, refilled with earth and replanted.

Finally, the water basin is going to be refilled with water (1cm high), and a new passage will be built over it[282], allowing to conciliate Saugey's original project with the transit needs of the users.

157. Detailed construction drawing of the works on the flooring of the *Miremont*'s hall 1:800. (Meier+associés architectes, August 26th 2013, original scale 1:200). Grey: striated concrete over the ramp; Red: terrazzo to replace due to the works on the piping system; Pink: terrazzo to replace; Blue: cracks to refill; White with blue line: new passage to built over the water basin; Blue line: existing cracks.

03.4.3 The façade

03.4.3.1 Prefabricated concrete panels

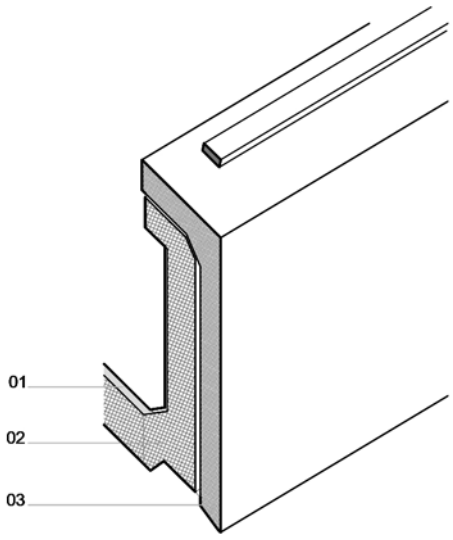
In the apartment building *Miremont-le-Crêt*, the prefabricated concrete panels are used as exterior covering of the reinforced concrete parapets, thus, not having any influence on the building's heat balance. Nonetheless, the repair of the deteriorated panels contributes to restore the building's original appearance – as it is the aim of any renovation intervention – at the same time it allows the co-owners to notice visible improvements.

With a thickness of 8cm, the original prefabricated concrete panels are composed of an interior core of medium quality concrete, containing the steel framework (7cm), recovered by a thin layer (1cm) of concrete combined with marble powder[283]. The special composition of the panels' exterior surface confers them a whiter colour – than the traditional prefabricated panels – as well as a singular brightness and reflexions, thus, granting them a unique appearance.[284]

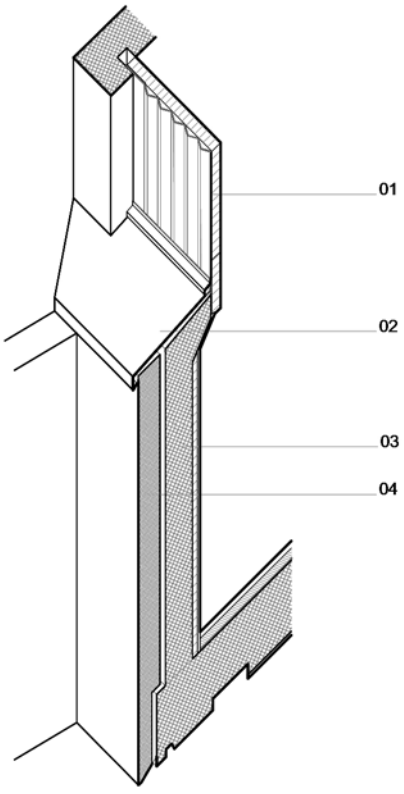
282 The projet for this new passage can be seen on detailed drawing of *Miremont-le-Crêt*'s renovation project provided by the architecture office Meier+associés (dating from August 26th 2013).

283 Cf. Claire Maillet et al. – op. cit., p.15.

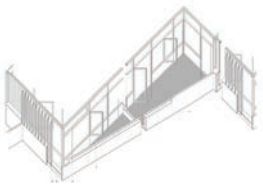
284 Idem.



158. 159. Prefabricated concrete panels covering the balconies's parapets. View of the façade (April 4th 2014). Axonometric section of the balconies' parapets 1:20.
1. Concrete screed (3cm)
2. Reinforced concrete slab
3. Prefabricated concrete panel (8cm)



160. 161. Prefabricated concrete panels covering the opaque walls' parapets. View of the façade (April 4th 2014). Axonometric section of the opaque walls' parapets 1:20
1. Corrugated aluminium sheet (2mm)
2. Protecting drip in aluminium (2,5mm)
3. Reinforced concrete slab
3. Prefabricated concrete panel (8cm)



See attatchment 1.01.

The main cause of the prefabricated panels' deterioration is carbonation. Present throughout the concrete's lifetime, this chemical phenomenon – resulting of the reaction between concrete and carbon dioxide – reduces the concrete's durability and strength, causing its gradual degeneration. This natural process, although impossible to avoid, can be delayed by protecting the concrete's exterior surface with appropriate coating products, impeding its reaction with the air. However, the natural exposure to rain and pollution gradually destroys this protective layer, re-increasing its sensitivity to carbonation.

Furthermore, the carbon dioxide's diffusion by capillarity action soon allows carbonation to reach the interior framework. When this happens, the acidity generated originates rust, pressuring the concrete that ends up bursting. When exposed to the air, the steel frameworks are rapidly corroded. Thus, the thicker the concrete elements are, the more difficult is for carbonation to reach their frameworks.[285]

In the case of *Miremont-le-Crêt*, some of the steel bars of the concrete panel's framework are positioned little more than 1cm from their surface[286], therefore allowing carbonation to easily reach them.

In addition, on the side *Miremont*, the prefabricated concrete panels were recently subject to a water jet cleaning, with the aim of ameliorating their superficial appearance. However, this maintenance operation has instead accelerated their deterioration process. Thus, the panels are largely carbonated and several of their steel frameworks are exposed to the air and extremely corroded.

Despite being less clean, on the side *Calas*, the prefabricated concrete panels are better preserved, with a less advanced state of deterioration.

162. Carbonated concrete elements on the edges of the slabs (May 8th 2014).

163. Carbonated concrete elements. Frameworks exposed to the air and corroded (May 8th 2014).

The Maa's project for *Miremont* envisions both the treatment of the deteriorated concrete panels and the replacement of the most damaged ones.

In the first case, the panels have to be poked to remove the carbonated concrete from their surface. If the carbonation has reached their frameworks, these have to be cleaned and coated with an anti-

285 Cf. Claire Maillet et al. – op. cit., p.14.

286 Information provided by the architect Ms. Laurence Boyé (Maa) in an interview on April 4th 2014.

corrosion product, before the concrete can be redone.

In conformity with the architects' principles of intervention in the building, when one of the prefabricated panels has more than 50% of its surface deteriorated, the entire panel has to be poked and fully rehabilitated, in order to avoid noticeable differences on its surface.

In the second case, when the precast panels are too severely damaged, the architects foresee their replacement by identical ones. However, the manufacturing of these new panels has proven to be very delicate, once it demands retrieving the unique composition of their external layer.

Therefore, in order to avoid differences in the overall appearance of the prefabricated concrete panels – both the original, renovated and new ones – a preventive product is going to be applied to all of them. This product was specially developed for *Miremont* by a dedicated company, which worked in close collaboration with the team of architects. The solution encountered, fully transparent, limits the panel's carbonation, at the same time it unifies the appearance of all panels; nonetheless, without hiding their singular visual aesthetics.

03.4.3.2 Glazing

A large extension of *Miremont-le-Crêt*'s envelope is covered by glazed surfaces. In fact, both Northwest and Southeast façades, as well as the Southwest façade are almost entirely glazed. Only the Northeast gable-end façade represents an exception to this logic.

In addition, the existent glazed surfaces of *Miremont* are still the original ones, meaning they are constituted of a single glazing held on pine-wood window frames[287], painted blue.

As a consequence, with an extremely low thermal performance – characteristic of the single glazing – they contribute to more than half of the apartment building's total heat losses.[288]

Therefore, the architecture office Meier+associés considers their replacement by a more performant thermal solution, one of the most important aspects of *Miremont-le-Crêt*'s renovation project. In effect, according to the architects, the substitution of the current glazing corresponds, approximately, to ¼ of the rehabilitation works in the apartment building.[289]

Different renovation solutions were studied by the architects, during the development of the project, with the aim of encountering the most performant glazing possible and the most subtle approach for its placing – which should avoid transforming the visual appearance of the building, as well as further weakening the already fragile[290] window frames.

287 Cf. p.93.

288 Cf. p.122.

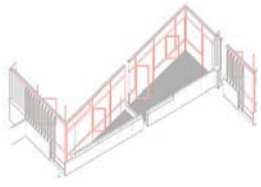
289 Interview with Ms. Laurence Boyé (Maa), April 4th 2014.

290 Cf. Patrick Devanthéry; Inès Lamunière – op. cit., p.27.

Consequently, the renovation project foresees the replacement of the original glazing by a Heat Mirror glazing (THERM) – a double glazing with a PVC film (2x8mm) between the two single glass panes (float glass 4mm thick). This type of glazing, produced exclusively by one manufacturer in Switzerland – Sofraver - has the advantages of being highly performant and rather thin – 24 mm[291]. Moreover, the solution adopted allows benefiting from the thermal effectiveness of a triple glazing, with the thickness of a double glazing[292]. Thus, it enables to save approximately 20 mm.[293]

Following the general approach of the renovation project - privileging an intervention on the outside of the building - the new glazing is placed in the exterior limit of the original window frames, thus, enabling to preserve them to the maximum. However, to maintain the façade's original appearance – meaning the former exterior relative positions between its different elements - a new piece of wood is added to the exterior fixed uprights of the window frames. Thus, allowing the new glazing to be in the same plane as the original.

See attatchment 1.01.



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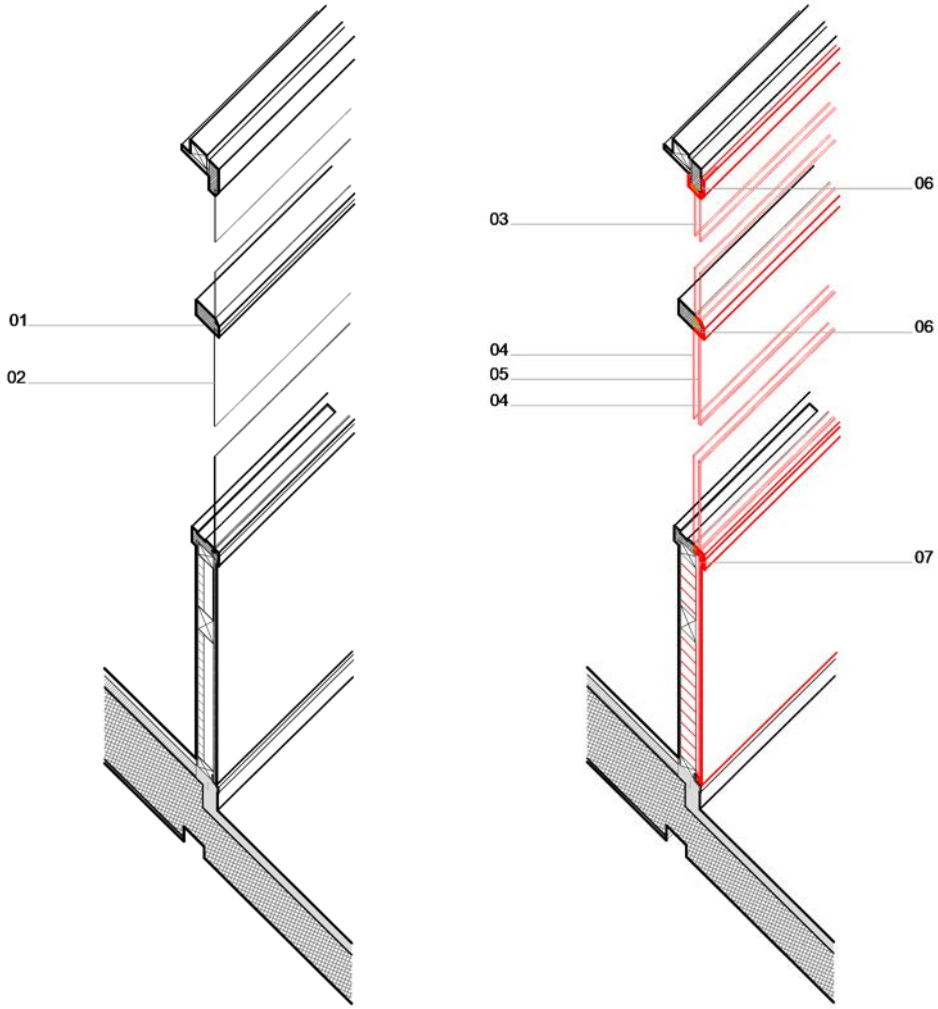

164. 165. Axonometric sections of the balconies' glazed wall. Original project and rehabilitation intervention 1:20.
1. Fixed window frame in pine wood; 2. Single glazing; 3. Heat Mirror glazing (THERM) 24mm (Sofraver); 4. Float glass 4mm; 5. PVC film; 6. Reinforcing element in oak wood; 7. Reinforcing parapet element in oak wood.

291 The specifications of this type of glazing were consulted in the manufacturer's website. Available at: http://www.sofraver.ch/produits/heat-mirror/therm-hm-88-et-tc-88.html [01.10.2014]

292 Cf. Idem.

293 Interview with Ms. Laurence Boyé (Maa), April 4th 2014.

Additionally, the implementation of this solution requires trimming 15 mm to the original fixed uprights, in order to allow the placement of the new double glazing with 24 mm, as well as to fit exteriorly a new piece of wood with 12 mm.[294] This exterior addition to the existing window frames, apart from protecting and strengthening them, also represents a solution to undercover the thickness of the new glazing.

However, the described operation only works for the fixed windows of the façade. The casement windows and doors' frames, as well as their hinges have to be entirely replaced, since the existing elements are not strength enough to support the weight of a double grazing. Nonetheless, the principle adopted is the same as for the fixed windows – to maintain the exterior alignments of the original façade, the new doors and windows' are replaced by the interior. Thus, their additional thickness is not perceived from the outside.

In addition, on the glazed façades not facing the balconies – whose casement windows are bigger than the balconies' ones - the window frames have to be reinforced, in order to support their new weight. Therefore, a wooden piece with 20 mm is added to the exterior fixed uprights.[295]

All new wooden elements, including the new windows and doors' frames, as well as the wooden pieces added to the fixed uprights, are in oak. Imported from France, oak is thus, almost a local material, with the additional advantage of being a hard wood, therefore, durable and mechanically resistant.

166. Balconies' new casement doors and renovated window frames May 26th 2014).

167. 168. Balconies' new hopper windows. Detailed view of the new glazing (May 26th 2014).

294 This description is based on the measurements available on the detailed drawing of *Miremont-le-Crêt*'s renovation project provided to the author by the architecture office Meier+associés (dating from August 30th 2013).

295 Idem. Cf. attachment 1.02.

Finally, although the new window frames and additional wood elements are primarily painted blue by the manufacturer, after the replacement of the fixed glazing panes, all the window frames – old and new – are to be repainted again. Also, profiting from the removal of the original fixed glazing panes, the blinds are cleaned – for the first time since the achievement of the construction – before the new glazing are put into place.

03.4.3.3 Opaque parapets

Although almost completely glazed, the exterior walls of *Miremont-le-Crêt*, overlooking the triangular balconies, have opaque parapets. Placed between the fixed wood uprights of the window frames, those are constituted of an interior wood block board (8mm), a mineral wool insulation board (15mm) [296] and an exterior fibre cement board (10mm).[297] The insulation board is placed between both the wood block panel and the fibre cement panel, however leaned against the inner surface of the first. Apart from being insufficient to allow the parapets a good thermal performance, the mineral wool insulation boards are much deteriorated, and need to be replaced by a more efficient solution.
On the other hand, a survey carried out by a specialized company identified asbestos in the composition of the fibre cement boards. Over the years, some of these panels have also been painted by the co-owners – which changed the façade's original image.

The architecture office Meier+associés has decided to replace, in every apartment, the existent insulation and the fibre cement boards, conserving however the interior wood block panels, which are in perfectly good condition.
In order to improve the thermal performance of the opaque parapets, the new insulation consists of a 60 mm[298] layer of aerogel – which contrarily to the former existent insulation board, occupies the whole interior space of the parapet, plus some additional 10mm (resulting from the new façade alignments, which require to move the parapet's exterior board some 10mm towards the outside).
Regarding the fibre cement boards these are going to be substituted by new boards, also in fibre cement, although without asbestos. However, the new panels have a smooth surface, whereas the original ones had a fibered finishing.[299]
Despite these small differences, the renewed parapets will restore the overall original appearance of *Miremont*'s façade.

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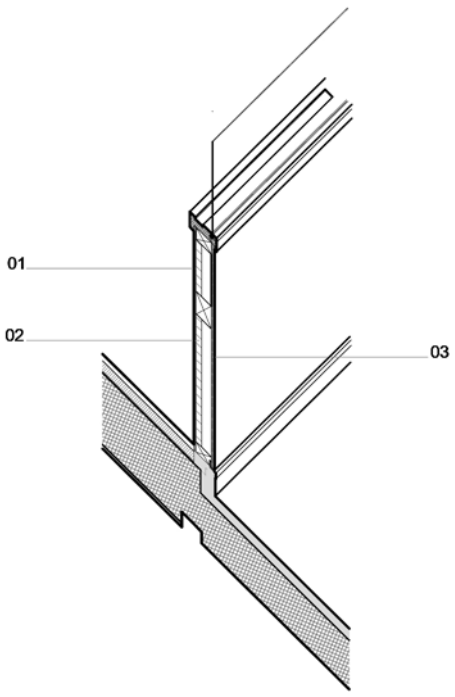
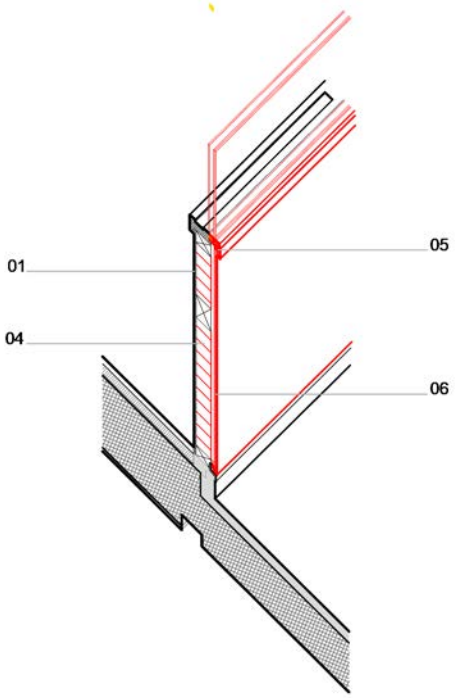
296 According to Patrick Devanthéry; Inès Lamunière – op. cit., p.25 the existent insulation board should have 20mm. However, according to the detail drawings of the original construction, provided by the architect Oleg Calame, this insulation board has only 15mm.

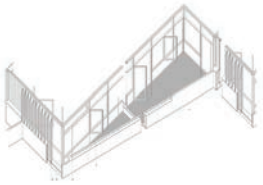
297 Cf. Patrick Devanthéry; Inès Lamunière – op. cit., p.25.

298 This description is based on the measurements available on the detailed drawing of *Miremont-le-Crêt*'s renovation project provided to the author by the architecture office Meier+associés (dating from August 30th 2013).

299 Interview with Ms. Laurence Boyé (Maa), April 4th 2014.







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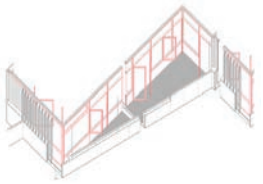
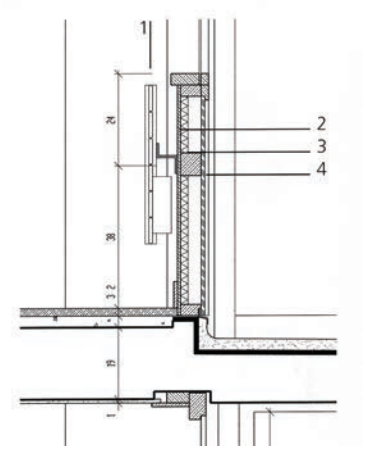


See attatchment 1.02.

169. 170. Axonometric sections of the opaque parapets of the balconies' glazed wall. Original project and rehabilitation intervention 1:20.
1. Wood block board (8mm); 2. Mineral wool insulation board (15mm); 3. "Eternit" fibre cement panel (10mm) (with asbestos); 4. Aerogel (60mm); 5. Reinforcing parapet element in oak wood; 6. "Eternit" fibre cement panel (10mm) (without asbestos).

It is important to note that no renovation work is envisioned for the opaque parapets holding heaters inside.[300] Those already have a 20 mm thermal insulation board – well preserved and providing sufficient insulation – and on the outside an iron board with 10 mm[301], instead of the fibre cement panel, thus needing no replacement.



171. Section of the parapets holding heaters inside 1:20. 1. "Runtal" heater; 2. Wood block panel (8mm); 3. "Stilite" insulation board (20mm); 4. Iron panel.

172. Balconies' renovated opaque parapets with new fibre cement panels (without asbestos) (May 26th 2014).

300 Idem.

301 Cf. Patrick Devanthéry; Inès Lamunière – op. cit., p.25. – These panels are constituted of two iron boards «Salvit» (10mm), both in the interior and exterior, and a 20mm «Stillite» insulation. The heaters are from the brand «Runtal».

03.4.3.4 Wired glazing parapets

Wired glass was "widely used at the time of the achievement of *Miremont-le-Crêt*"[302], especially as a safety glass. Accordingly, in the apartment building it is used as a parapet, integrated in the window frames of the building's façade.

Contrary to what was thought at the time, the mesh of thin metal wires actually diminishes the glass intrinsic resistance, making wired glass less mechanically resistant than traditional glass. In addition, its fragility also makes it very sensitive to significant thermal differences, causing it to easily break. [303] As a result, according to the current standards its use is largely not recommended.

In the apartment building *Miremont-le-Crêt*, the existence of a pillar straight behind the wired glazing parapet - keeping the users at a safe distance - makes it use acceptable by the regulations in force.[304] However, in *Miremont* some of the wired glazing parapets have already been replaced by the co-owners, by a single glazing or opaque parapets.[305] The remaining ones, are very deteriorated and some of them even partially broken.

173. Wired glass parapets integrated in the window frames of the building's façade (May 8th 2014).

174. 175. Wired glass is also used in *Miremont-le-Crêt* as a covering panel of the reinforced concrete parapets - instead of the prefabricated concrete panels. Cracked panel (May 8th 2014).

302 "(...), était largement utilisé à l'époque de la construction de Miremont-le-Crêt." in Claire Maillet et al. – op. cit., p.26.

303 Cf. Idem.

304 Cf. Ibidem.

305 Cf. p.118.

Despite its fragility and security problems, the architects decided to maintain the use of wired glazing parapets in *Miremont-le-Crêt*, thus preserving the original appearance of the façade, as it was the primarily aim of the renovation project.
Nonetheless, in order to attain a satisfying thermal performance, complying with the standards in force, it was necessary to find a solution of an insulating wired glazing, leading the architects to work in collaboration with the manufacturers.
The solution encountered foresees the replacement of the existent single wired glazing by a double glazing parapet, combining an exterior wired glazing with an interior single glazing. However, it is not an optimal solution – it does not avoid the large thermal differences between both surfaces of the wired glass, and thus impeding it to break. Nevertheless, it remains the best solution to preserve the original appearance of *Miremont*'s façade. Thus, all the existent wired glazing parapets are going to be replaced by this new solution, as well as the ones that are already covered by other materials.

03.4.3.5 The aluminium wall

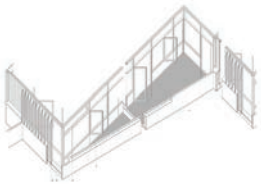
Despite predominantly surrounded by glazing surfaces, *Miremont-le-Crêt*'s apartments also comprise some opaque exterior walls, overlaid with aluminium panels.
Presently, these opaque sections consist of an external corrugated aluminium sheet (2mm) applied against a wooden fibre board (30mm) coated interiorly with plaster and paint.[306] The second is fixed both to the reinforced concrete parapet and the adjacent wall, as well as on top to the wooden window frames. Outside, an aluminium frame holds the corrugated aluminium sheet against the wooden fibre board.
With little more than 30mm, these opaque sections of *Miremont*'s façade have a very low thermal performance. The principal intervention envisioned by the architects aims to augment the wall's insulation thickness and thus, the comfort inside the apartments.
Following the main approach of the renovation project, the architects decided to privilege again an intervention on the outside of the façade, in order to avoid the occurrence of condensation on the inner side of the wall. Indeed, adding the new insulation on the inside would be also complicated, because of the existent interior alignments.

Consequently, an additional insulation board is going to be placed against the outer side of the existent wooden fibre boards, in order to improve the wall's thermal performance. Consisting of 20mm of aerogel, the positioning of the new insulation board requires the removal of the aluminium panels, which have to be cleaned before being placed back again.
Additionally, new aluminium frames are going to be conceived for holding the corrugated aluminium sheets, since the existent ones are extremely corroded. Also, a new aluminium frame is going to be manufactured, and added on top, to fix the corrugated aluminium sheets to the new aerogel

306 Cf. pp.93-94.

insulation board.[307]

The solution encountered results in the addition of a 20mm thickness to the exterior façade. As mentioned previously, the adjacent window frames are also going to be reinforced with an exterior 20mm wooden piece.[308] Thus, the original façade's alignments are kept and the new increment on the aluminium wall is not going to be perceived.



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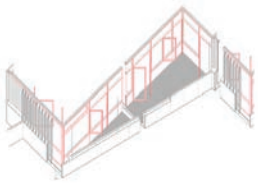

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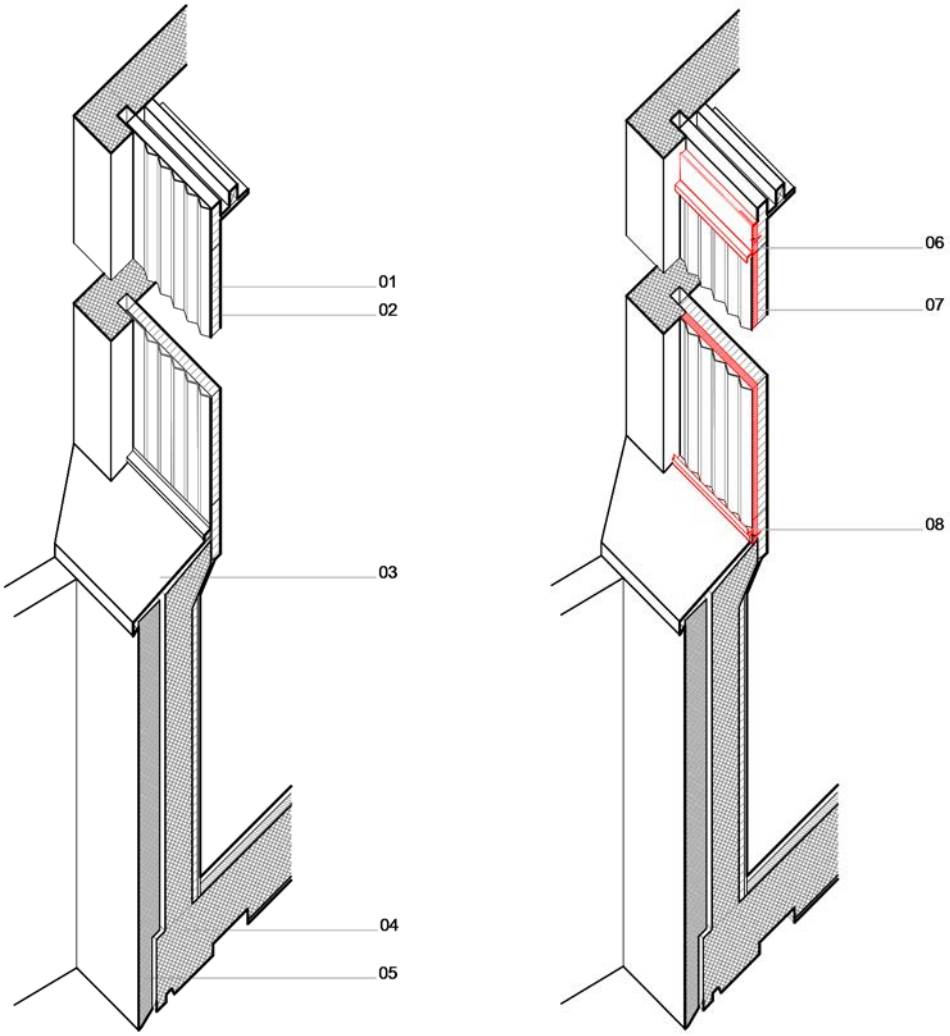
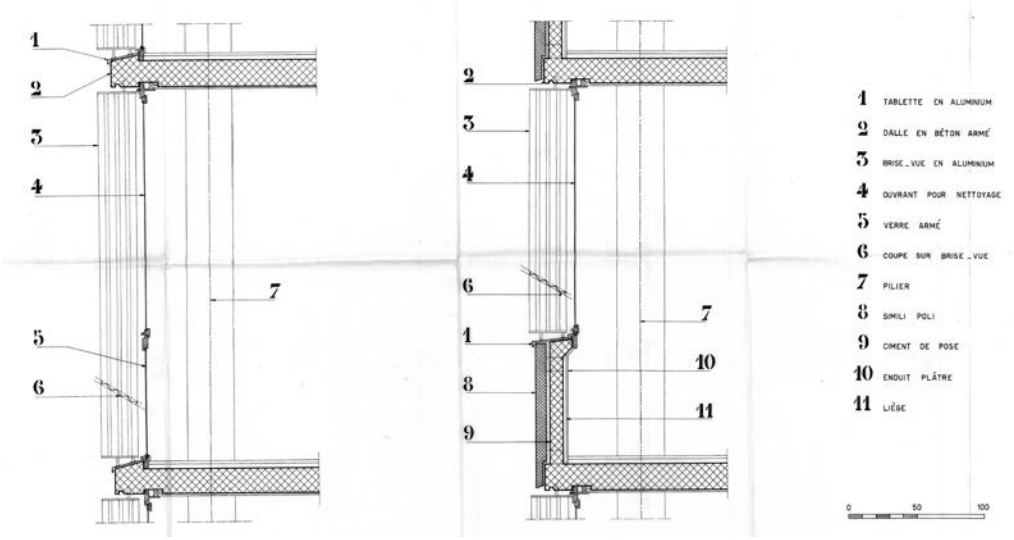


176. 177. Axonometric sections of the opaque wall. Original project and rehabilitation intervention 1:20.
1. Corrugated aluminium sheet (2mm); 2. Wooden fibre board 30mm; 3. Protecting drip in aluminium (2,5mm); 4. Reinforced concrete slab; 5. Prefabricated concrete panel (8cm); 6. Fixing and protecting element in aluminium (1,5mm); 7. Aerogel (20mm); 8. Fixing element in aluminium (1,5mm).

307 This description is based on the measurements available on the detailed drawing of *Miremont-le-Crêt*'s renovation project provided to the author by the architecture office Meier+associés (dating from August 30th 2013).

308 Cf. p.133.

Miremont-le-Crêt's existent *brises-soleils* are still the original ones. Made of corrugated industrially-oxidized aluminium sheets (254 x 30 x 1.5 mm)[309], hold on aluminium profile frames, the *brise-soleils* are fixed to the slab and screwed into the wood window frames, on top, whereas, attached, by a threaded bracket, to an aluminium tablet (2 mm) applied over the concrete parapets, on the bottom.[310]



178. Detailed drawing of the *brise-soleils* and respective fixations (Archives IAUG, Fonds Saugey).

Although most of them are in good condition[311], their surfaces are dirty and need to be cleaned, to restore their original appearance. Also some of the inner rods of the attaching brackets, made of steel, are extremely corroded[312] and have to be replaced.

The aim of the architects is it to preserve as much as possible the existent *brise-soleils*. However, mainly on the ground floor some of the original *brise-soleils* are blended[313]. According to the principle adopted by the team of architects, when one needs to be replaced, the entire set is actually replaced, so it does not have a big impact on the façade. Also, new *brises-soleils* have to be manufactured for the attics, where they have been removed by the co-owners[314].

Moreover, a few of the aluminium protecting drips covering the concrete parapets are also deteriorated. To substitute them, news ones, also in aluminium, are going to be produced.

309 Cf. Patrick Devanthéry; Inès Lamunière – op. cit., p.25.
310 Cf. p.93-94.
311 Cf. p.118-119.
312 Cf. Patrick Devanthéry; Inès Lamunière – op. cit., p.25.
313 Cf. Idem.
314 Cf. Ibidem.

179. Blended *brise-soleils* (May 8th 2014).

180. Deteriorated aluminium protecting drip (May 8th 2014).

03.4.4 Gable-end façade

Miremont-le-Crêt's Northeast gable-end façade consists of a double wall – an exterior reinforced concrete wall and an interior brick one, with an air gap of 30 mm in between – covered with prefabricated concrete panels, similar to those on the balconies' parapets.[315]

181. Prefabricated concrete panels covering the double wall of the gable-end façade (April 4th 2014).

182. View of the gable-end façade. On top some of the prefabricated concrete panels are deteriorated (May 8th 2014).

This double wall has a relatively good thermal performance, however to improve the inhabitants comfort and to provide it a insulation in accordance with the actual standards, the architects propose to inject an insulation foam into the existent air gap.

315 The constitution of the gable-end wall is visible on the undated type floor plan provided by the architecture office Meier+associés (dating from August 9th 2013). The covering prefabricated concrete panels are easily perceived on site or on the available photographs of the building.

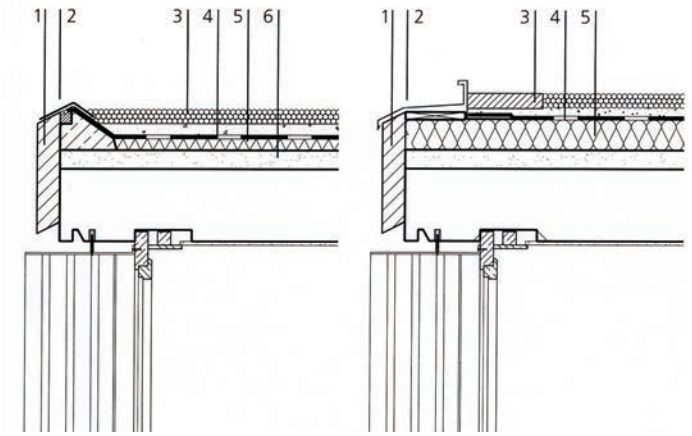
The injection of this insulation foam is going to be made through holes pierced on the bricks of the interior wall pane. This very delicate operation had to be planned in collaboration with the heat engineers, to prevent the occurrence of condensation throughout the inner surface of the brick wall and especially on the thermal bridges. In the end of this procedure, the plaster coat has to be rebuilt and the walls entirely repainted.

Nonetheless, due to some misalignments of the inner brick wall, it is difficult to apply a continuous insulation layer inside the existent double wall, thus making it impossible to achieve a perfect thermal performance. In this case, the minimum thickness of insulation, to comply with the regulations in force, had to be 20 mm[316]. However, in some sections of the double wall, the existent air gap is smaller.
As a consequence, the thermal amelioration provided by the insulation of the gable-end wall is not significant to the improvement of the apartment building's overall heat balance.

Regarding the prefabricated concrete panels - although the majority is well preserve – the deteriorated ones will be submitted to the same renovation works as the balconies' ones.

03.4.5 The roof

Initially, *Miremont-le-Crêt*'s roof consisted of a reinforced concrete slab (19 cm), a screed to falls layer (5 cm), cork insulation mats (2 cm), a watertightness membrane, sand (3 cm) and gravel (3 cm). The roof parapet was a prefabricated concrete panel leaned against the slab and covered by a sloped metal flashing cap.[317]
Some years ago, the roof was renovated and the cork was replaced by 8 cm of polyurethane insulation, which improved significantly its thermal performance. The new thickness of insulation also required the substitution the parapet's flashing cap. However, these changes were implemented without altering the exterior appearance of the building.[318]



183. Section of the original roof 1:20.
1. prefabricated concrete panel
2. flashing cap
3. sand and gravel (6cm)
4. watertightness membrane
5. cork insulation (3cm)
6. screed to falls layer (5cm)

184. Section of the roof after the first renovation 1:20
2. flashing cap
5. insulation (8cm)

316 Value provided by the architect Ms. Laurence Boyé (Maa) in an interview on April 4th 2014.
317 Cf. Patrick Devanthéry; Inès Lamunière – op. cit., p.24.
318 Cf. Idem.

Despite the accorded derogation from the SIA standard[319], the architects decided to insulate the building's roof as imposed by the present laws, in order to avoid the necessity of supplementary works in the near-future.

The solution adopted, developed in partnership with a specialised company, consists in the augmentation of the roof insulation to 26 cm, conferring it a very satisfactory thermal performance. The new insulation consists of two different layers: the first one, with 10 cm, follows the original profile of the roof, whereas the second, thicker, is set black from the façade, to limit the visual impact of the roof's new profile. On the edges of the roof, a new flashing cap in stainless steel hides the new insulation layers, however being visible from the ground.

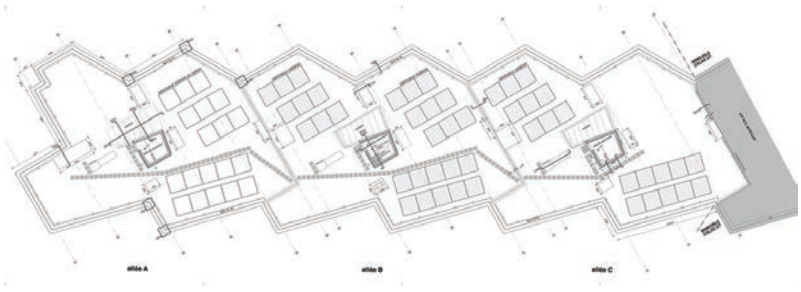
185. Roof being renovated. New profile and flashing cap (May 26th 2014).

186. New ventilation chimney of the hall (May 26th 2014).

Also on the roof, the new ventilation chimney of the building's hall was displaced from the vertical direction of the pipe to restrain its visibility from the ground.

According to the Geneva legislation on energy[320], every renovation has to have the capacity to produce, by a renewable source, at least 30% of the building's necessary energy for the heating of domestic water.

The project from Meier+associés architectes includes the placement of solar panels on the roof, which will allow producing 45% of the energy spent on heating.



187. Detailed construction drawing of the roof 1:800. Installation of the solar panels. (Meier+associés architectes, February 18th 2014, original scale 1:100). In grey the solar panels required by the Geneva legislation and in white the optional ones.

319 Cf. p.122.

320 *Lois ur l'énergie*, L2-30, *Etat de Genève*. Available at: http://www.geneve.ch/legislation/rsg/f/s/rsg_l2_30.html [02.10.2014].

03.5 The construction site

03.5.1 Planning

In May 2013, the architecture office Meier+associés obtained the planning permission for the renovation of the *8 ABC avenue de Miremont*.[321] Since then, they worked on the project's detailed design, producing its full construction drawings, including the site works and the specification finishes – which were concluded in the beginning of 2014.
The construction site was officially opened on January 6th 2014[322] – for the building's side *Miremont* – and, according to the architects, the works on the building's façade began on March 8th 2014, in a vacant apartment.[323] The rehabilitation works on both the façades and on the building's technical elements will be completed by the end of 2014, while the finishing works on the hall, as well as on the building's exterior accesses will take place in 2015.[324]

Following the achievement of the renovation works on the side *Miremont,* the architects will initiate the works on the building's side *Calas*. However, by the time of the delivery of this work, no planning permission had yet been granted to the *5-7 avenue de Calas*.[325]

03.5.2 General procedure

The construction site planning envisions the simultaneous execution of the renovation works on the building's façades, piping and ventilation systems, and roof. Moreover, to ease the reconditioning operations on the draining pipes, the hall's false-ceiling and its respective heating system were already dismantled right in the beginning of the works. As mentioned early, following their conclusion, the hall's ceiling is going to be fully insulated.

The company responsible for the building's rehabilitation was keen on having two teams working independently in two different apartments, a challenge that only one contractor accepted, but that ensures that the whole glazing of four apartments is changed in one week. Each team takes one day to replace the glazing of the balcony and then another day to change the reminding glazings, therefore completing the whole process in each apartment in just two working days. This system intended to allow the building's tenants to remain in their apartments during the rehabilitation works. However, the replacement of the apartment's entire plumbing makes the conditions quite difficult.

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321 Cf. Meier+associés architectes' website – news. Available at: http://www.maa.ch/?locale=fr# [30.09.2014].
322 Cf. Idem.
323 Information provided by the architect Ms. Laurence Boyé (Maa) in an interview on April 4th 2014.
324 Cf. Meier+associés architectes' website – news.
325 Information firstly provided by the architect Ms. Laurence Boyé (Maa) in an interview on April 4th 2014, and then confirmed on Meier+associés architectes' website - news, before the delivery of this work.

The complete renovation of each apartment is supposed to take three weeks, comprising the entire replacement of its plumbing (kitchen and bathroom) and the complete renovation of its façades'. However, some unexpected but necessary actions are delaying the works. Those include the existence of cracks in the balconies' ceiling and floor, requiring the treatment of the concrete's carbonation and of the corroded frameworks. Then, another unexpected issue is the presence of asbestos in the composition of the tiled flooring, implemented by the co-owners in some of the balconies. Their removal requires the intervention of a specialised company, which inevitably delays the rehabilitation progress. Also, to avoid future infiltrations that damage the balconies' slabs and potentially increase the carbonation of concrete, an insulating coating resin is going to be applied on the balconies' flooring, which turned out to be another delaying action.

Moreover, profiting from the renovation works in progress, some of the co-owners decided to remodel the interior of their apartments. However, as a consequence of the building's heritage status, some of these works require the approval of the OPS.

03.5.3 Sequence of works in an apartment

1. Treatment of the prefabricated concrete panels.

   The carbonated concrete is removed and the corroded frameworks are cleaned and protected with an anti-corrosion product. Then, the concrete is redone and the panels are coated with a preventive product, unifying their surfaces.

188. Carbonated prefabricated concrete panel (May 26th 2014).

189. Panel restored (May 26th 2014).

2. Removal of the tiled flooring, treatment of the balconies' slabs, application of the insulating coating resin

The existent tiled flooring contains asbestos in its composition, therefore it has to be removed. This removal, however, needs to be performed by a specialised company.[326] The cracks on the balconies' ceiling also have to be treated; this treatment is the same as for the prefabricated concrete panels. Finally, the balconies' flooring is coated with an insulating resin, to avoid future infiltrations.

190. 191. Cracks on the ceiling and flooring of a balcony (May 26th 2014).

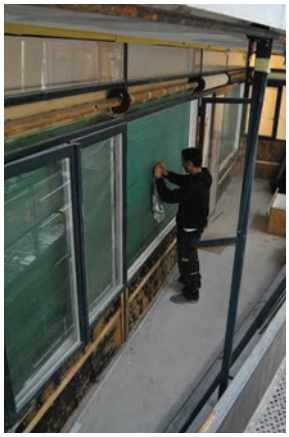
192. 193. Ceiling of a balcony after being treated from carbonation. Flooring of a balcony coated with the insulating resin (May 26th 2014).

3. Replacement of the glazing surfaces and renovation of the opaque parapets

Before removing the existent glazing, a pavatex protection is applied on the remaining window frames. Then, the fixed glazing and the original casement windows a removed. The opaque parapets exterior board in fibre cement as well as the insulation are also removed. Profiting from the removal of the fixed glazing, the blinds are cleaned – for the first time

326 Cf. p.134.

since the achievement of the original construction. Following, the new fixed glazing is placed and the new reinforcing wooden window frames uprights are fixed. Then, the new casement windows and hinges are mounted. Finally, the aerogel insulation is placed in the opaque parapets and the new fibre cement boards are placed.



194. Original glazing, window frames and opaque panels removed (May 26th 2014).

195. Glazing, window frames and opaque panels renovated (May 26th 2014).

4. Renovation of the aluminium wall

The aluminium panels are to be removed and jet cleaned. After the placement of the new insulation, the panel are refitted with the new fixations.

196. 197. New protecting drips in aluminium (May 26th 2014).

198. Aluminium panel renovated (May 26th 2014).

5. Renovation of the *brise-soleils*

The *brise-soleils* must be removed and cleaned. The corroded inner rods of the brackets should be replaced by new ones, and then the *brise-soleils* are refitted it to place.

6. Painting of the window frames

After the conclusion of all works involving the poking of concrete, the new window frames need to be repainted in blue. Then silicone is to be applied around the windows.

199. New fibre cement panels protected during the final painting of the window frames (May 26th 2014).

200. A balcony's glazed façade renovated (May 26th 2014).

On July 15 2014, the renovation of the first building of the *8 ABC avenue de Miremont* was achieved, "delivering the first impressions of the work put back in its original condition, but with the new glazing"[327].

201. View of the façade of the building A in the end of the rehabilitation works (Meier+associés architectes).

202. View of the façade of the building A in the end of the rehabilitation works (Meier+associés architectes).

327 "(...), livrant les premières impressions de l'ouvrage remis dans son état d'origine, mais avec de nouveaux vitrages." in Meier+associés architectes' website – news.

CONCLUSION

The work developed in the present dissertation aimed to study and document the rehabilitation intervention on one of Geneva's most notorious Modern Movement buildings, *Miremont-le-Crêt*. Therefore, its goal is to contribute to the ongoing debate on the preservation of the architectural heritage of the past century.

To allow a complete understanding of the rehabilitation project developed by the architecture office Meier+associés architectes, this dissertation follows the same logic carried out during the study done. After a brief summary of the main problematic addressed, which gives a moto for the title of this dissertation – preserving the legacy of the Modern Movement – the work begins with a contextualisation of the architectural and urban-planning panorama of the post-War period in Geneva. Following this, there is a description of the life and works of Marc Joseph Saugey, the architect of the case study building, considering the conditions and events of its time. Finally, there is the analysis of the case study building – *Miremont-le-Crêt* – original project, heritage classification procedure and rehabilitation intervention. Apart from the written documentation, it was also produced a set of comprehensive axonometric sectioned views of the façade.

All this enables the reader to comprehend the remarkable qualities of this building and its singularity, not only in the work of its architect, but also in a local, as well as international scale.

The listing of *Miremont-le-Crêt* as a Cantonal monument in 2002 was an essential step towards the described rehabilitation intervention. This extent four years long process, included a survey on the building's condition, established the specifications for the following interventions, and justified the rehabilitation project as an essential measure to assure the survival of Saugey's legacy. Developed by the office Devanthéry & Lamunière, this study became an essential guideline for the current rehabilitation works.

The reference for the development of this rehabilitation project was the research work made for the *Cité du Lignon* – one of the case studies of Geneva, presented in the first chapter of this dissertation work. This was a pilot study developed by the TSAM, the *Laboratoire des Techniques et de la Sauvegarde de l'Architecture Moderne* of the EPFL, which took place between 2008 and 2011.

The research carried for the rehabilitation of the envelopes from the housing precinct of the *Lignon* was unparalleled, being innovative in terms of methods applied, in the reflexion that it presented on the restauration of buildings from the 1950s and 1960s, and in terms of rehabilitation techniques used such as to keep the original window frames by inserting performance glazing, and in the use of efficient insulation materials such as aerogel. All these techniques were used in *Miremont*, a fact which proves the importance of this research and its contribution to understand that the preservation of the built complexes from this period can be sustainable.

In *Lignon* there was a transfer of knowledge from research to the profession, which marked a turning point not only for Geneva but also for Switzerland and even internationally. This study was published throughout the world and recognized with the Europa Nostra award 2013, thus being a model and contributor to the preservation of the architectural heritage of the 20th century.

Since the apartment building *Miremont-le-Crêt* had never experienced any extensive rehabilitation works, many of its materials were starting to show signs of being worn or obsolete. This may also be justified by the choice of materials, made in a time of industrial development and innovation, many times made without proof of their long term performance.

The main focus of its rehabilitation project was the building's envelope – although some technical improvements of its components were also planned as the renewal of both piping and ventilation systems, the insulation of the roof and the subsequent installation of solar panels (as required by the Canton's legislation).

The changes introduced had to comply with Saugey's spirit, maintaining therefore the basic looks and functions of the building, a challenge successfully embraced by the architecture office Meier+associés architectes.

The main goal was to reduce the envelope's original thermal loss, from 580 MJ/m^2.year to 200 MJ/m^2.year – value accorded with the competent authorities. This was not only achieved but significantly surpassed, with the target now set at 160 MJ/m^2.year, rather close to the current 120 MJ/m^2.year standards of the Canton of Geneva, especially considering the building's date of construction (1956-1957) and the fact that the envelope is mainly composed by glazed façades and thermal bridges like the numerous balconies.

This challenge is however made bigger by the associated need to keep the appearance and substance of the building as close to the original as possible, an absolute requirement on a Modern Movement rehabilitation project. This was achieved by maintaining the original window frames – which were reinforced only in specific places in order to allow the sustainment of the new glazing – by insulating their opaque parapets, as well as the aluminium wall and gable-end façade without disrupting their original appearance; and also by preserving the wired glass parapets, regardless of this material thermal inefficiency.

However, there is a case where this wasn't possible. The building's entrance halls presented an ingenuous system of heat radiation, which unfortunately largely contributed to the heat loss of this space, mainly through its glazing façade. Therefore, a choice had to be made between keeping the heating system and the original glazing. The decision of keeping the hall's glazing façade was taken not only within the rehabilitation principles but also considering the co-owners opinion and the economical aspect. However, this is recognized as a loss in the building's original substance, although it may be reconsidered in the end of the ongoing works, depending on the remaining budget.

This decision raises an important question. Should a rehabilitation intervention be more concerned in complying with the actual thermal standards rather than with the preservation of the original architectural quality and technical solutions of the building? Or should a balance be found between energy, comfort and authenticity?

With this being said, it is notable the effort that the architecture office Meier+associés dedicated

to maintain or recover the original appearance of the building and the success they are achieving.
In *Miremont-le-Crêt*, almost all materials and components that are still able to perform their role are being maintained and/or rehabilitated. The prefabricated concrete panels are being treated from carbonation and the aluminium elements – panels, *brise-soleils* and their respective fixations – are being restored. Also the balconies and ground floor's floorings are being renovated.
At the same time, a number of changes with the aim of returning the building to its original appearance are also being carried. The entrance hall's walls are going to be repainted in their original colours – following chromatic analysis – the covered interior and exterior circles and bands of vegetation are going to be refilled with earth and replanted, and the original water basin, outside *Miremont*'s hall, is going to be refilled with water in the end of the works. However, not without the construction of a new passage over it, allowing to conciliate Saugey's original project with the transit needs of the users.
This way, by the end of the rehabilitation process the building will be back to a condition, both in the inside and outside, incredibly close to that found just after the completion of its construction by Saugey. Allied to the building's unique and, at the time of its construction, innovative characteristics, this is what makes this venture worth being analysed and documented as an example of Modern Movement buildings' rehabilitation. Consequently, this was also the major factor for being selected as the theme of this dissertation work.

Although, as in almost any other case in architecture, the approach and decisions taken in the rehabilitation of *Miremont-le-Crêt* may not be consensual. Another question that can be placed is if it wouldn't be wiser to change as well certain aspects of the apartments to improve the comfort of the inhabitants, and turn the apartments more able to satisfy the contemporary society's demands? As the architects referred, the original kitchens have very small areas that no longer correspond to the tenants' needs, having consequently been altered in some of the apartments. Although the building's interiors are also protected by safeguarding measures, wouldn't a project proposing their adaptation, of course with respect to Saugey's ideals, contribute to the future sustainability of the building?

The proof of the success of the rehabilitation work being carried in *Miremont-le-Crêt*, is the noticeable increase in the interest of both the architect community and the public in this particular building and in other unpaired creations from Marc-Joseph Saugey, such as the Manhattan Cinema, the *La Tourelle* building and the *Mont-Blanc Centre*, all recently rehabilitated.

In a broadest sense, the preservation of the Modern Movement architecture is essential to guarantee the future and sustainability of these buildings, testimonies of a particular period of History, and whose architectural and technical qualities are already well recognized. However, their continuity does not depend only on the recognition of their heritage value, but also on their continuing economic viability. Thus, the objective should be to maintain the MoMo buildings' original intentions, although adapting them to the standards of the contemporary society. Nonetheless, this quest for

sustainability should not be sought without taking into account the conservation of their material and conceptual authenticity.

In conclusion, given the limits of time and resources, this dissertation cannot be considered a complete and finished study on the rehabilitation of the apartment building *Miremont-le-Crêt*, but rather a serious contribution to a future work of detailed documentation of the project and its result. Such a work should include the full detailed drawings, as well as photographic records of every detail in the different project stages – original, condition before the rehabilitation intervention, rehabilitation work and final result – in order to allow their comparison and their broad and complete evaluation.
Due to the fact that only a few detailed drawings were made available by the architects, that just two short interviews where held with the project leader and that the monitoring of all phases of the rehabilitation works was not possible, this work lacks more detailed information on every aspect of the rehabilitation intervention, which occasionally made it difficult to accurately describe.
Nonetheless, a great effort was made to be the most complete, precise and coherent possible, as well as to overcome the challenge it constituted working simultaneously in different languages.

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Miremont-le-Crêt

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The list of the existent documents is available online at: http://wacap.unige.ch:3146/pls/opacacm/arcficrep$.startup?h_fonds=Saugey

The majority of the existent documents concerning the building *Miremont-le-Crêt* are available online under request at: http://wacap.unige.ch:3146/pls/opacacm/arcficrep$.result

The Saugey Archives are deposited in:

Campus de Battelle (Bâtiment A - sous-sol)

7, route de Drize

1227 Carouge/Genève

Tel.: ++ 41 22 379 07 74

http://www.unige.ch/archives/architecture.html

The reponsable archiviste is Madame Bernadette Odoni-Cremer

e-mail adress: Bernadette.Odoni@unige.ch

Archives of the Service des monument et des sites

The *dossier* gathering the files of *Miremont-le-Crêt*’s heritage classification procedure is available for public consultation at the:

Office du patrimoine et des sites

Département de l’aménagement, du logement et de l’energie

Republique et Canton de Genève

Rue David-Dufour 1

Case postale 22 – 1211 Genève 8

http://www.geneve.ch/patrimoine

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ATTACHMENTS

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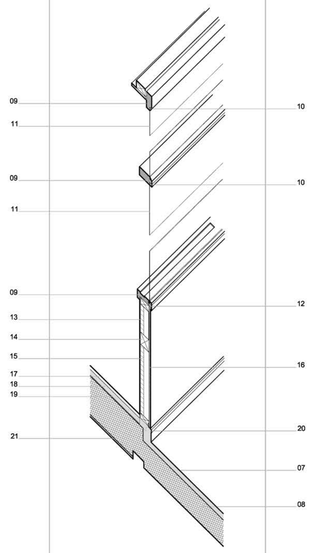

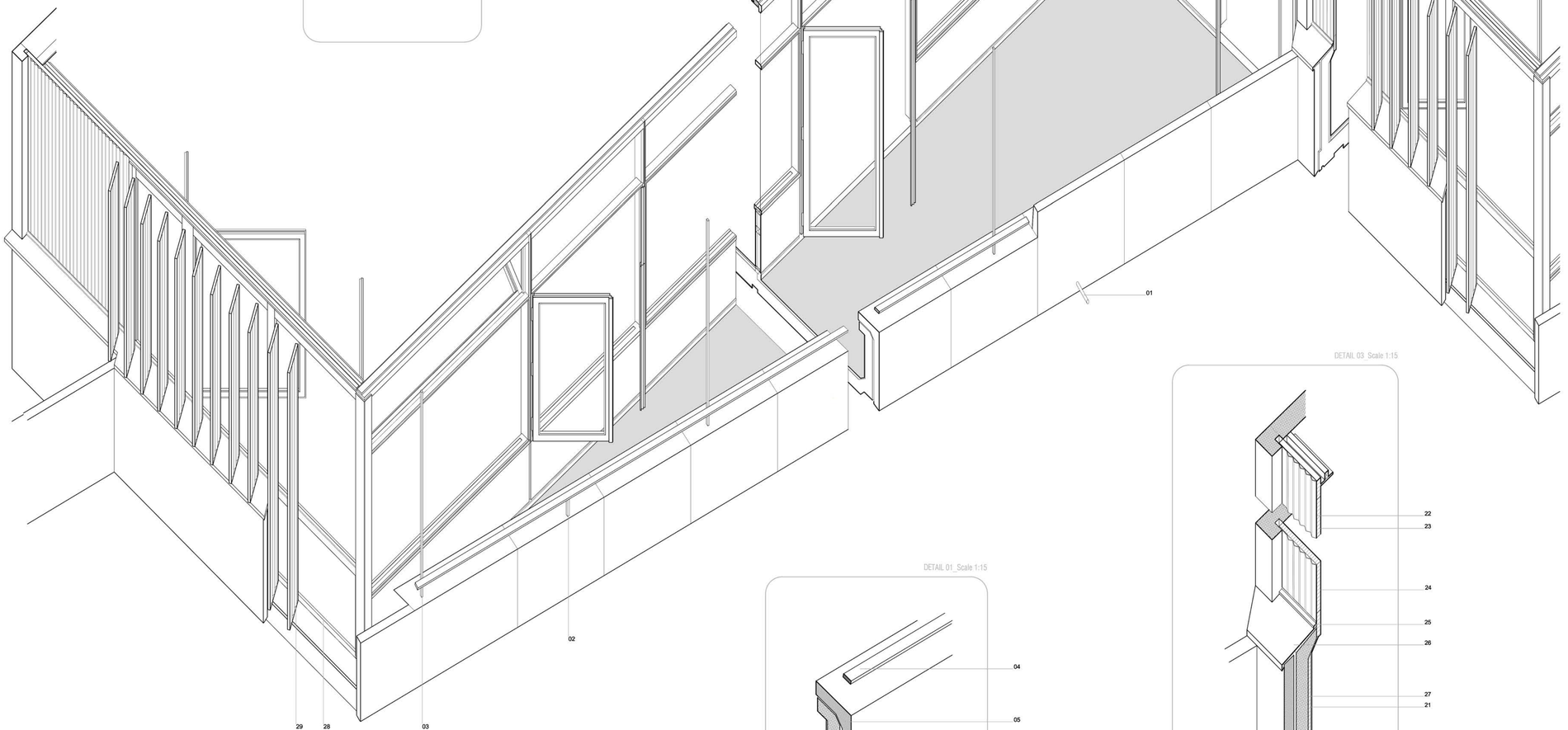

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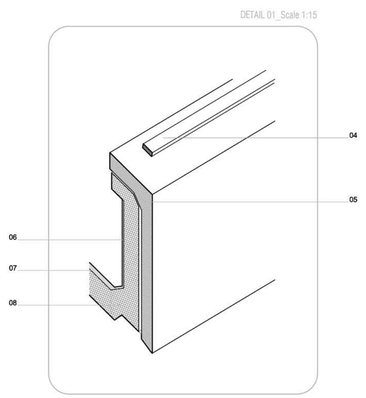

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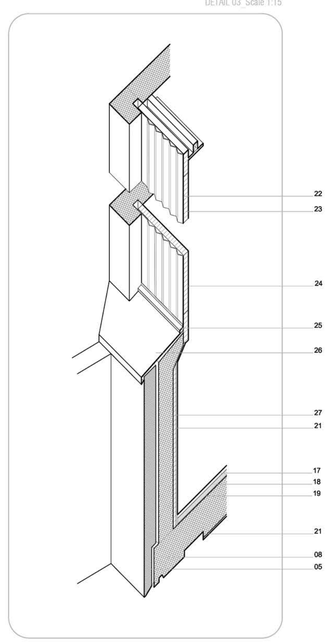


MATERIALS

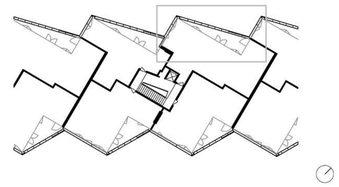
01_Hot galvanized drain pipe diam. 2" lenght 14cm
02_Iron tube 18x15mm painted blue and fixed in simili-stone
03_Iron tube 50x15mm painted blue and fixed in simili-stone

DETAIL 01
04_Handrail iron tube 60x25mm painted blue
05_Prefabricated concrete panel 8cm
06_Plaster + paint 10mm
07_Concrete screed 3cm
08_Reinforced concrete slab

DETAIL 02
09_Fixed window frame in pine wood (painted blue on the outside)
10_Fixing element in pine wood (painted blue on the outside)
11_Single glazing
12_Parapet fixing element in pine wood (painted blue on the outside)
13_Wood block board 8mm
14_Interior wood structure
15_Mineral wool insulation board 15mm
16_"Eternit" fibre cement panel 10mm (with asbestos)
17_Parquet flooring
18_Sand 27mm
19_Glass wool mat + felt mat 5mm
20_Aluminium pendant drip 2mm
21_Plaster + paint 10mm

DETAIL 03
22_Corrugated aluminium sheet 2mm
23_Wooden fibre board 30mm
24_Plaster + paint 10mm
25_Fixing element in aluminium 1,5mm
26_Protecting drip in aluminium 2,5mm
27_Cork 20mm

28_Wired glass glazing
29_*Brise-soleil* in aluminium



Existing Building | Original Project
Construction | Rehabilitation Intervention
Demolition

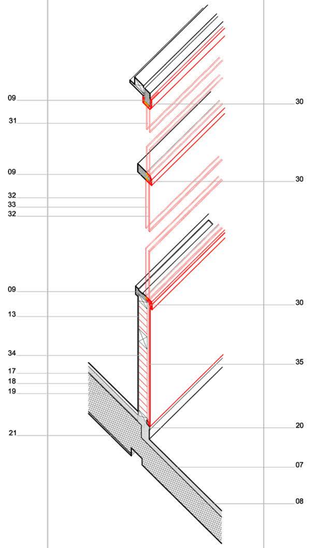
Axonometric view_Northwest façade_Scale 1:25

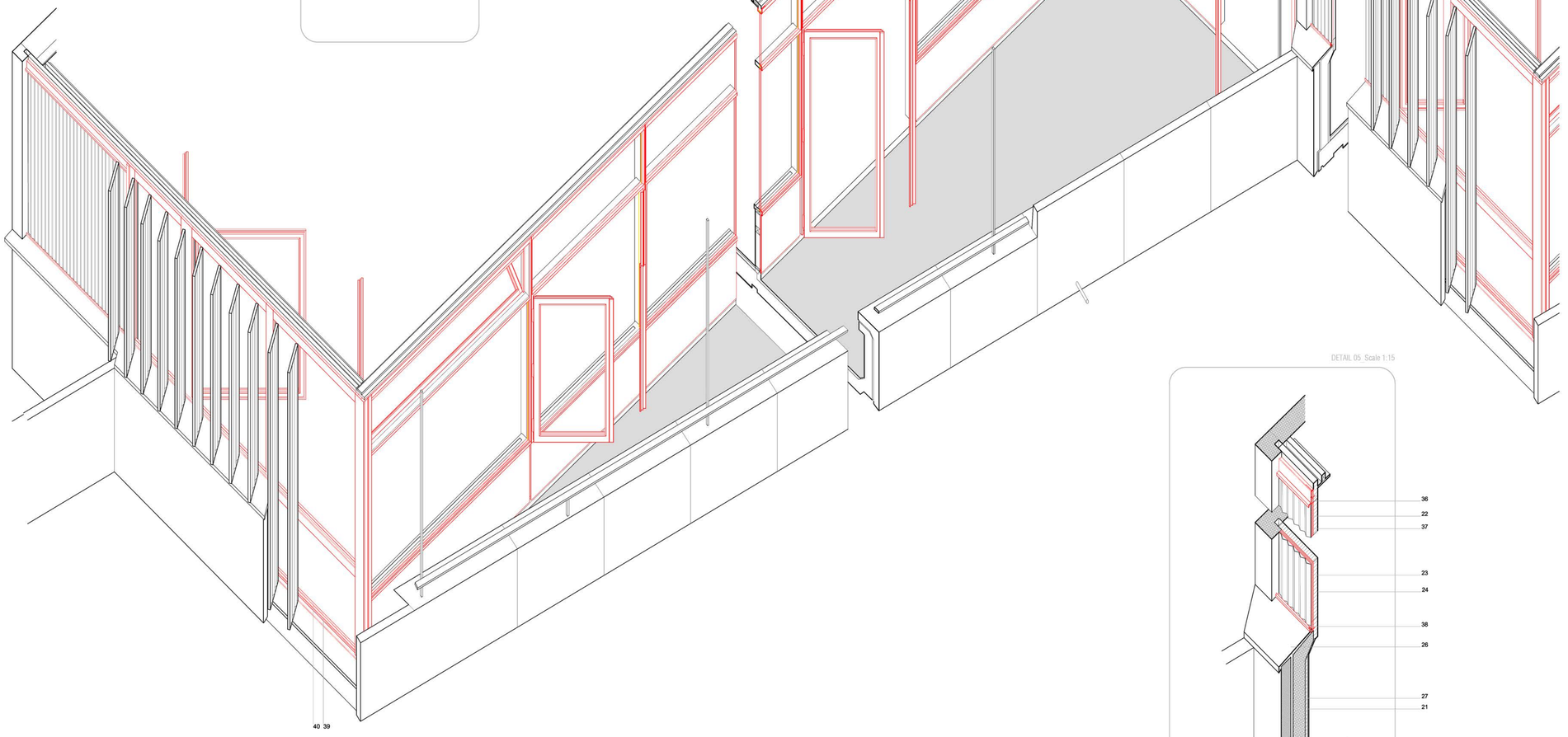
Maria Patricia Vendrell Serrano Duarte

Universidade de Lisboa | Instituto Superior Técnico
Integrated Masters in Architecture | Dissertation | 30 October 2014
Professor Ana Tostões | Professor Franz Graf

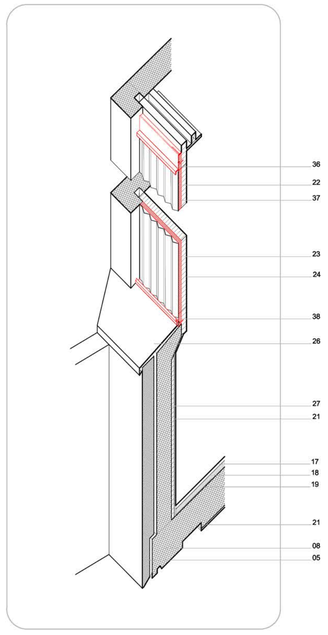
MIREMONT-LE-CRÊT
ORIGINAL PROJECT

DETAIL 04_Scale 1:15





DETAIL 05_Scale 1:15



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17_Parquet flooring
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27_Cork 20mm
28_Wired glass glazing
29_*Brise-soleil* in aluminium

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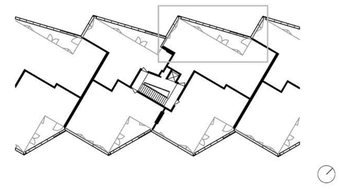
31_Heat Mirror glazing (THERM) 24mm (Sofraver)
32_Float glass 4mm
33_PVC film
34_Aerogel 60mm
35_"Eternit" fibre cement panel 10mm (without asbestos)

DETAIL 05
36_Fixing and protecting element in aluminium 1,5mm
37_Aerogel 20mm
38_Fixing element in aluminium 1,5mm

39_Wired glass glazing
40_Single glazing



Existing Building | Original Project
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MIREMONT-LE-CRÊT
REHABILITATION INTERVENTION

2. OTHER DOCUMENTS

2.01 BIOGRAPHY OF MARC JOSEPH SAUGEY

architect and urban-planner, CIAM, GANG, FAS, ASA, ATG, UIA.

1908	Birth in Vésenaz, village of the municipality of Collonge-Bellerive (Geneva), on April 24th.
1915-20	Primary school in Collonge-Bellerive.
1921-26	École des Arts et Métiers of Geneva, construction and civil engineering section. Final diploma: *Icare,* airfield for Cointrin (in collaboration).
1926-28	École de Beaux-Arts of Geneva, architecture section.
1928-32	Practice abroad.
1932	Opening of the architecture office VSSL with Louis Vincent, René Schwertz and Henri Lesemann. Founding member of the GANG, the *Group pour l'architecture nouvelle à Genève* (counting, among others, with the architects Hoechel, Sartoris, Vincent and the members of the CIAM).
1935-37	Project and construction of the residential tower on the *14 Boulevard Helvétique*, also known by *Tour de Rive*.
1940	Installation of his architecture office in the last floors of the *Tour de Rive*.
1947	Member of the *Commission d'étude pour le développement de Genève,* and from this date, member of the *Commission d'urbanisme*, of which he will be president.
1947-50	Project and construction of the *Hôtel du Rhône* with the Société Générale d'Industrie. Trip to Spain to study hotel facilities (Barcelona and Madrid). Afterwards, he conceived several projects for hotels abroad (for London, Paris, Madrid, Ankara, Istanbul, Bagdad, the Costa Brava and Sardinia). Only the one of Ankara is built (1954-1960).
1948-51	Project and construction of the residential building *Malagnou-Parc*, the first Swiss experience of prefabrication with reinforced concrete.
1949	General delegate at the Union Internationale des architects (UIA) since the first congress in Lausanne.
1950-71	Professor at the School of architecture of the University of Geneva.
1952-56	Project and construction of the commercial building *Mont-Blanc Centre*, first Swiss experience of the "Curtain-Wall". In this complex he built as well the cinema *Le Plaza*.

1954 Prospecting in Spain for projects on the Costa Brava. Realisation of the holiday village Giverola in Pola (Spain).

1954-55 Project and construction of the commercial and residential building *Terreaux-Cornavin*.

1956-57 Project and construction of the cinema *Le Paris*-Manhattan.
Project and construction of the residential building *Miremont-le-Crêt*.

1956-58 Project and construction of the commercial and residential building *Gare-Centre*. In this complex he built as well the cinema *Le Star*.

1962-64 Project and construction of the commercial building *La Tourelle*.

1963-64 Swiss National exhibition in Lausanne, direction of the port sector and realisation of the Casino.

1964-67 Project and construction of the commercial building *Cendrier-Centre*.

1966-69 Project and construction of the administrative building of the insurance company Winterthur in Barcelona.

1968-70 Project and construction of the commercial building of the *62-64-66, rue du Rhône*.
Project of the administrative and residential building *National Suisse*, in the *quai Gustave-Ador* (built in 1971).

1970 Project of the *Grand-Casino*, commercial building and hotel.

1971 Death on January 7.

Translated and adapted from the biography published in:
SARTORIS, Alberto – *Joseph-Marc Saugey 1908-1971 ou l'architecte retrouvée. Hommage à Saugey*. Cahier n^{o}. 3. Cossonay: Editions des valeurs nouvelles, 1991, pp. 99-100.

2.02 «*L'ESPACE HABITABLE, MIREMONT-LE-CRÊT*»

By Marc Joseph Saugey

In *Architecture, formes, fonctions*, n°. 8. Lausanne: Édition Anthony Krafft, 1961-62, pp. 77-82.

A un moment où l'on tente de redonner un sens total au volume d'habitation, quelques réminiscences ne sont pas inutiles.

À chacune des époques caractéristiques, aux conditions permanentes de l'habitat, dictées par la civilisation, les moeurs, le climat, etc., s'additionnaient des facteurs apparemment mineurs qui conduisaient à des solutions complètes du logis.

L'homme vit dans un tout, difficilement divisible; le paysage terrestre, les panoramas, les visions urbaines, le jeu des espaces entre éléments naturels ou construits, tout contribue à la formation du cadre geéneral de vie.

Force est cependant, dans ces considérations, de se limiter à l'un des aspects, que nous appellerons par commodité: l'espace habitable.

Dès qu'il a commencé à construire son abri, puis ensuite sa demeure, l'homme à cherché, sous des formes différents souvent même opposées, à trouver des éléments de liaison naturels et psychiques qui pouvaient le relier sous une forme ou une autre aux éléments extérieurs, naturels et bâtis.

Lorsque l'on visite les cavernes de la Dordogne, on ne peut pas manquer d'être frappé par le choix qu'ont fait nos ancêtres des espaces intérieurs naturels. Ce choix étant certain, on ne peut qu'y souscrire. On reconstitue assez facilement les emplacements de guet, d'attente et ceux des commencements de vie commune. Les peintures, à des emplacements que l'on sent déterminés, créent déjà les éléments de liaison.

On peut faire les mêmes constatations, avec une volonté de se servir des abords extérieurs, dans les habitations troglodytes d'Anatolie, par exemple. Les accès, les terrasses constituent déjà des éléments solides de liaison avec la nature et le paysage.

Dans la Haute-Egypte, les habitations des villages, constituées avec des roseaux comme unique matériau, découlent aussi des mêmes facteurs. Ce sortes d'enclos de 2 à 4 m. de hauteur, sont disposés autour de petites placettes; quelques paravents intérieurs forment les espaces fonctionnels rudimentaires. Ici, la liaison avec la nature est obtenue en hauteur, puisqu'il n'y a aucun toit. Et cela me rappelle cette fine et humuristique répartie d'un fellah à qui je demandais la raison de leur réserve à l'égard d'habitations fermées que leur offrait le Gouvernement: «Monsieur, il pleut dans notre région quelques jours par an. Pourquoi veux-t-on nous empêcher toutes les nuits de dormir en regardant la lune!».

Avec les habitations des peuplades noires du Cameroun, dont les cases s'intègrent harmonieusement aux murs d'enceite et forment des réussites spaciales incontestables, les éléments de l'habitat sont presque tous réunis sous une forme vraiment réussie. La disposition obéit rigoureusement aux différents fonctions et moments de la vie. L'isolement total y est réalisé, de mêmes que les contacts, ambiances, intérieurs et extérieurs.

Faisons un bond dans le temps et constatons que grâce à des rues aux multiples perspectives, des façades presque complètement vitrées, le Gothiques ont trouvé eux aussi pour leur habitat des expressions correspondant à leur façon de vivre et à leurs aspirations. En fonction d'intérieurs dont les pièces sont judicieusement dimensionées, spécialement en hauteur, ils font intervenir l'extérieur comme un facteur direct.

Repartons vers le sud et réunissons dans une égale admiration les réussites d'espaces habitables que sont les ensembles des pays du soleil, les Casbahs, les habitations des rivages et îles de la Grèce notamment. Tout est réuni: espaces intérieurs, atmosphères extérieurs, couleurs, ambiance adéquate, etc.

Avec ses grandes compositions symétriques, aux ordonnances si rigoureses, la Renaissance subordonne l'habitat à des impératifs d'ensemble. La liaison avec l'extérieur s'effectue par des ouvertures qui ne sont plus à l'échelle des pièces, et la vie est reportée vers l'intérieur, avec des cours dont la beauté architecturale et l'échelle nous sont connues. Là encore, les éléments de vie tout court ont conditionné l'habitat. Pendant toute cette période de grandeur de la pierre comme presque unique matériau de construction, la rigueur de composition des grands ensembles avait sa répercussion dans la distribution intérieur des pièces, sous une forme tout aussi rigide.

Jusqu'à ces dernières années, l'homme de l'Europe centrale a continué à habiter dans des demeures, individuelles ou collectives, obéissant aux mêmes conceptions de vie, les possibilités de retrouver un accord avec les éléments extérieurs existaient déjà.

Il a fallu quelques pionniers, et heureusement parmi eux des architectes, pour secouer la couverture poussiéreuse, des usages et conventions qui ne répondaient plus en rien à une nouvelle façon de vivre, donc de l'art de bâtir.

Sous les prétextes les plus divers, allant de l'esthétique à l'économique, l'on conservait, l'on imposait même, la conception d'appartements à la rigidité toute militaire, dont les pièces étaient alignées, les unes à côté des autres, dans un invisible garde-à-vous. Seuls rompaient dans cet ensemble ennuyeux quelques types d'appartements dits transversants.

Rappelons-nous, et il n'y a pas si longtemps de cela, les fameux appartements de luxe, avec grand hall d'entrée «dit habitable», dont la cheminée en face de la porte d'entrée constituait l'élément principal, flanqué de chaque côté de la porte des W.C. et celle des bains, les autres parois étant aussi trufées de portes vitrées, réduisant ce hall à un complexe de circulations.

L'abandon des rues-corridors, l'adoption e plus grands espaces libres, ont contribué à diminuer quelque peu l'importance de ces facteurs négatifs, mais le problème n'a pas été résolu pour autant.

La libération du plan par l'ossature portante et la façade-rideau, a incité quelques architectes à rechercher des solutions rompant avec des formules périmées mais tenaces, pour les mettre en accord avec la vie contemporaine et bénéficier des possibilités offertes par un urbanisme adéquat.

Dans ce domaine, les projets de Le Corbusier, de Candilis, de Wood, de Neutra, entre autres, ont ouverts de nouvelles voies.

On constate malheureusement que presque partout l'ordonnance des plans d'aménagement des quartiers d'habitation, est d'une monotonie désespérante. Là où devrait déjà commencer le domaine psychique du logis, ce ne sont que de simples espaces limités sur deux ou quatre côtés par des bâtisses rectangulaires.

A ces tristes espaces, s'ajoute le lourd inconvénient du vis-à-vis, qui est certainement un des éléments primordiaux à éviter dans la forme actuelle de l'habitat. On fait beaucoup état actuellement d'enquêtes sociales dans lesquelles le facteur isolement des habitants revient constamment. Il est certain que de grosses améliorations devront être réalisées pour qu'une vie communautaire vivifiante soit à nouveau instituée. Mais le problème, semble-t-il, ne sera pas résolu par une meilleure connaissance des locataires de palier à palier, par des formes différentes de concentration à divers densités. Ce bien plus par des équipements collectifs d'éducation, de loisirs, de culture, de civisme, destinés à succéder aux anciennes petites places de village ou de quartiers, autour desquelles la vie collective s'épanouissait.

Auparavant, dans une vie au rythme beaucoup plus lent et équilibré, des rapport plus étroits entre les différents habitants de logements, découlaient inéluctablement de cet état de fait.

Aujourd'hui, une cadence rapide et trépidante incite le travailleur à considérer son logis comme un îlot de solitude et de récupération.

Je pense qu'en dehors du travail, une double pulsation serait mieux adaptée à l'homme d'aujourd'hui : «un logis vivant», agréable refuge, possédant les prolongations extérieurs voulues, et, à proximité: «les équipements collectifs» générateurs culturels, sportifs, civiques, religieux.

D'énormes et nombreux efforts doivent êtres encore faits dans l'étude et la réalisation des plans d'ensemble en vue de ce résultat parfaitement logique. Il est urgent et indispensable de dépasser le pauvre stade actuel du parachutage d'immeubles locatifs «boîtes d'allumettes», plus ou moins longues ou hautes, ne pouvant créer que des espaces mornes, sans possibilités d'une activité ou de détentes tonifiantes.

Par expérience, j'ai pu constater que l'équidistance entre les blocs d'immeubles jouait un rôle beaucoup moins important qu'on ne le pense. En leur judicieux, agréable et utile aménagement, réside la première condition à remplir.

J'ai vue des espaces de verdure de près de 50 000 m^2, déserts le samedi et le dimanche, les gosses préférant jouer au ballon dans des rues étroites, au nord, parce que «c'était moins triste et que dans l'espace vert se trouvait l'école qui rappelait la semaine de travail».

Un plan d'aménagement basé sur le double rythme, établi non pas schématiquement, mais en fonction des différents principes d'habitations, autorisant des recherches variées des volumes, d'espaces, de groupements construits selon une conception harmonieuse, permettra d'instituer, de développer une vie individuelle et communautaire adéquate.

C'est dans de tels cadres que le logis, l'espace habitable, devrait s'imbriquer, en sa forme la plus complète.

Les abords immédiats du bâtiment, l'entrée, les halls, appartiennent déjà à cet espace et doivent contribuer à dégager des réactions propices et souhaitées. Il faut donc substituer à l'entrée trop souvent étriquée, conventionnelle quelles que soient ses décorations, des halls amples, liés à la nature, pouvant même par les jours de mauvais temps, constituer des promenades intérieures aux visions agréables. Les cheminements d'accès verticaux aux appartements devront prolonger cette ambiance. Le logis devra tout d'abord répondre fidèlement aux impératifs de vie pratique. Les trois

fonctions:

- «vie commune et officielle» (hall, salon, studio et salle à manger)
- «service» (cuisine, office, bonne, etc.)
- «vie privée» (chambres, rangement, bains)

devront être nettement définies et séparées. Les circulations entre ces trois fonctions devront être étudiées de manière à éviter de transformer certaines pièces en véritable hall de gare. Les sections «service» et «privé» pourront être conçues simplement par volumes fermés avec les commodités nécessaires.

Par contre, dès l'entrée, une gradation, un développment judicieux des volumes de la partie officielle, sera souhaitable.

De l'entrée à la terrasse-logia, cet ensemble devra être conçu comme un tout, aux perspectives les plus variées possibles, de façon à obtenir un sentiment de libération, une liaison véritable avec l'exterieur et constituant en même temps un espace à plusieurs directions. Des jeux de parois séparant les fonctions dans ces espaces intérieurs, remplaceront avantageusement les locaux fermés avec portes.

Mais dans cette voie, d'autres progrès peuvent encore être réalisés, de façon à arriver à conférer à l'appartement la plupart des avantages de la villa. Le but sera donc «la villa dans l'espace».

Pour obtenir ce résultat, on devra accorder une importance, un développement plus grand à l'ancienne loggia qui doit devenir une véritable pièce extérieur et être un élément de liaison nouveau entre les différentes parties de l'appartement. Elle constituera en elle-même une articulation permettant de passer sans autre de la chambre à coucher au studio, etc. Sa forme devra donc être appropriée.

Par ailleurs, et tout spécialement pour les bandes d'immeubles parallèles, malheureusement encore trop nombreuses, la supression morale et visuelle du vis-à-vis s'impose.

Un essai à grande échelle réalisé à Genève pour le groupe de Miremont-le-Crêts à démontré combien de telles solutions pouvaient être appréciées. Cette nouvelle ambiance a été obtenue en établissant les plans d'appartement sur une trame à 60^{o} au lieu de la trame à 90^{o}. Sans perte de surface, au contraire, des visions plus dégagées ont été obtenues, de même que des orientations supplémentaires, sans oublier l'agrément que constitue toujours une pièce d'angle.

La loggia, d'une surface importante, de par sa forme, joue son véritable rôle de pièce extérieur, en même temps qu'elle crée des atmosphères de lumière agréables. L'ensoleillement de plus longue durée, les divers aspects du cadre extérieur au long de la journée, confèrent des avantages supplémentaires.

Des grandes baies, dont certaines à la lumière tamisée par les para-vue, sans retombée de plafond, lient sans interruption espaces internes et nature.

Les diverses possibilités d'isolement ou de vie commune sont accrues, en même temps que la sensation d'une surface mise à disposition plus grande, en accord avec le site ambiant.

Les solutions d'aménagement en L, en T, en Z, libèrent l'habitant du sentiment de parcage rigide, le plus souvent sur un seul côté, en conférant à l'appartement un ambiance de «vraie villa».

Car sur ce sujet une intéressante étude pourrait être entreprise, notamment sur les similitudes existant entre la concentration d'appartements dans les immeubles locatifs, et celle découlant des camps de guerre que constituent les morcellements aux innombrables villas, dont toutes les fenêtres dégagent... respectivement sur les façades voisines.

On pourrait y ajouter une étude psychologique sur les véritables besoins et le sens de détente de l'individu, lorsqu'on constate le succès toujours croissant des «vacances concentrationnaires anglaises, véritables camps de bruit, de rire, dont la vogue incite de hauts dignitaires politiques et religieux à entrer dans la danse».

Cette nouvelle conception du logis a inévitablement un prolongement dans un aménagement intérieur.

Architecture, équipement et mobilier, suivant leur conception, joueront un rôle bénéfique ou défavorable.

Un autre combat, non moins difficile et subtil, devra être mené par l'architecte ou l'architecte d'intérieur, pour utiliser, intensifier, les ambiances obtenues par ces nouvelles conceptions de l'appartement-villa. On devra aboutir à un stade plus avancé et évolué que la simple organisation avec des meubles plus ou moins «avant-garde». L'abandon de certaines parties de mobilier ou équipement et leur remplacement par des solutions d'intégration beaucoup plus complète à l'architecture intérieure, constitueront un nouveau pas vers le logis total.

Les éléments de séparation des diverses fonctions, ceux découlant des besoins d'une vie plus ou moins original, collaboreront, suivant l'interprétation qui leur sera donnée, à la création réussie de l'espace habitable. Le souvenir d'une telle réussite dans une villa de Coderch, toute blanche, au sommet d'une colline espagnole, pratiquement sans mobilier, tout étant «accroché» à la construction, souvent me revient en mémoire.

Sous une autre forme, l'intérieur des villas Jaoul de Le Corbusier, comme certaines réalisations de Wright, de Neutra, de Breuer, etc., nous guident dans cette évolution de l'espace habitable.

C'est en intensifiant de tels essais d'habitat, s'écartant délibérément de systèmes périmés, que l'on pourra mettre à disposition de l'homme, des logis dont les ambiances rendent possible une vie plus riche et plus belle.

2.03 *ARRÊTÉ DU CONSEIL D'ETAT*

Folio _____

1852-2002

RÉPUBLIQUE ET CANTON DE GENÈVE

ARRÊTÉ

statuant sur la demande de classement des bâtiments n° G677 et G678, sis sur la parcelle n° 1875, fe 73, de la Ville de Genève, section Plainpalais et des bâtiments n° G679, G680 et G681, sis sur la parcelle n° 1867, fe 73, de la Ville de Genève

du 20 février 2002

LE CONSEIL D'ÉTAT

Vu les démarches de l'Institut d'architecture de l'Université de Genève auprès des services de la direction du patrimoine et des sites, en date du 28 octobre 1998, suggérant le classement, au titre de l'un des témoins les plus représentatifs de l'architecture de Monsieur Marc J. Saugey, du bâtiment d'habitation Miremont-le-Crêt, formé des bâtiments n° G677 et G678, sis sur la parcelle n° 1875, fe 73, de la Ville de Genève, section Plainpalais, ainsi que des bâtiments n° G679, G680 et G681, sis sur la parcelle n° 1867, même feuille, même commune;

vu les motifs invoqués à l'appui de ces démarches, notamment le fait que, par sa configuration spatiale, sa typologie, la qualité des espaces des appartements et des parties communes qui le composent, ce bâtiment constituerait un exemple unique en Suisse et probablement en Europe;

vu la détermination de la Commission des monuments, de la nature et des sites (CMNS), du 16 décembre 1998, rendue en application de l'article 22 alinéa 1 lettre b) du règlement général d'exécution de la loi sur la protection des monuments, de la nature et des sites (LPMNS) et préavisant favorablement l'ouverture d'une procédure de classement;

vu la décision y relative du département de l'aménagement, de l'équipement et du logement, fondée sur la disposition réglementaire précitée, en tant que les démarches de l'Institut d'architecture, du 28 octobre 1998, n'émanent pas de l'une des entités (commune ou association d'importance cantonale), désignées par l'article 63 LPMNS;

vu la procédure de consultation des propriétaires, mise en oeuvre les 4 et 9 mars 1999;

vu les assemblées des copropriétaires, tenues les 5 mai 1999 et 1er novembre 2000;

vu les déterminations des copropriétaires, dont il ressort qu'une moitié d'entre eux environ s'est déclarée favorable au prononcé d'une mesure de classement du bâtiment Miremont-le Crêt;

vu le mandat d'étude confié à un bureau d'architectes par la direction du patrimoine et des sites, dans le but de définir le cadre général d'éventuels travaux de

restauration de ce bâtiment, qui s'imposeraient par l'effet de circonstances diverses, dont, notamment, celles liées au vieillissement dudit bâtiment;

vu les conclusions de cette étude et les propositions que celle-ci comporte dans l'optique du maintien de la qualité architecturale de ce bâtiment (y compris de ses éléments intérieurs), publiées dans la revue *Patrimoine et Architecture* (cahier n° 9, mai 2000);

vu le préavis de la Ville de Genève, du 4 juillet 2001, favorable au prononcé d'une mesure de classement de l'immeuble d'habitation Miremont-le-Crêt, une telle mesure devant englober l'ensemble formé par cet immeuble, sa structure et ses abords, ainsi qu'un cahier des charges appelé à faire partie intégrante de cette mesure et fixant les conditions relatives à la protection de l'objet classé, ainsi qu'aux interventions que celle-ci implique;

vu le préavis de la Commission des monuments, de la nature et des sites, du 28 août 2001, également favorable au prononcé d'une mesure de classement de l'ensemble de l'immeuble d'habitation Miremont-le Crêt, tant dans ses éléments extérieurs qu'intérieurs, cette commission suggérant, de surcroît et sur la base de la solution retenue pour le classement de la "Maison Royale", d'adopter une démarche identique en demandant d'étendre la mesure de classement aux éléments typologiques compris à l'intérieur de l'immeuble, qu'il conviendrait donc de conserver impérativement;

considérant qu'en vertu de l'article 4 de la loi sur la protection des monuments, de la nature et des sites (LPMNS), sont protégés les monuments de l'histoire de l'art ou de l'architecture et les antiquités immobilières situés ou découverts dans le canton, qui présentent un intérêt archéologique, historique, artistique, scientifique ou éducatif, ainsi que les terrains contenant ces objets et leurs abords;

que les spécialistes de l'architecture s'accordent à souligner que l'immeuble Miremont-le-Crêt constitue un exemple majeur en termes d'innovation typologique, notamment, à la fois parmi les réalisations de Marc J. Saugey, de même que dans le contexte général de la production architecturale genevoise de l'après-guerre;

que cette appréciation découle du fait que *"la variété du traitement des façades constituées d'une combinaison de pans opaques, de baies vitrées et de claustras, offre de multiples qualités de vues et d'apports de lumière"* (cf. Guide de l'architecture à Genève, 1919-1975 (J.M. Lamunière, I. Charollais et M. Nemec));

que les qualités propres à cet immeuble s'étendent aussi à son espace intérieur, qui *"s'organise autour des variations d'ombre et de lumière, par l'articulation de zones au caractère différencié, plutôt que par l'adjonction de pièces traditionnelles, à la fonction et au contour déterminés ..."* (cf. op. cit.);

que la CMNS, elle-même, considère cet immeuble comme étant *"l'expression d'une démarche architecturale novatrice et d'une recherche de typologie de logement originale"*;

qu'aucun motif n'habilite le Conseil d'Etat à s'écarter de l'appréciation des milieux spécialisés quant à l'intérêt que représente l'immeuble Miremont-le Crêt sur le plan architectural et historique, notamment;

qu'il est donc permis de considérer que ce bâtiment mérite d'être qualifié de monument au sens de l'article 4 LPMNS;

que cette condition, nécessaire au prononcé d'une mesure de classement, n'est toutefois pas suffisante;

que, dans ce contexte, il incombe au Conseil d'Etat d'effectuer une pesée de tous les intérêts publics et privés en présence;

qu'au terme de la consultation des copropriétaires, près de la moitié d'entre eux a fait part de son opposition à toute mesure de protection de l'immeuble dont s'agit;

qu'il convient de constater, toutefois, que les motifs allégués par les copropriétaires opposés à cette mesure reposent, le plus souvent, sur des considérations de nature personnelle et non pas sur des éléments propres à infirmer les appréciations portées par les milieux spécialisés, relatives à l'intérêt particulier de l'immeuble dont s'agit sur le plan architectural;

que, de ce fait, le Conseil d'Etat a encore moins de motifs de s'écarter des préavis favorables au classement de l'immeuble en question, exprimés tant par la CMNS que par la Ville de Genève;

que la question se pose néanmoins de savoir si une telle mesure doit s'étendre également aux parties intérieures de cet immeuble, selon les recommandations des commission, respectivement, collectivité publique susvisées;

qu'il ressort de l'instruction de la demande de classement et des pièces du dossier, que des transformations ou des modifications d'éléments significatifs ont été effectuées dans certains appartements dudit immeuble;

qu'au vu de ces transformations, parfois différenciées d'un appartement à l'autre, il pourrait sembler peu opportun, si ce n'est de rendre la mesure de classement sans objet, d'étendre celle-ci aux éléments de détail intérieurs des appartements, caractéristiques de l'époque de la construction de l'immeuble;

qu'en dépit de cette appréciation, les préoccupations de la CMNS relatives à une protection des éléments intérieurs de ce bâtiment n'en sont pas moins légitimes d'un point de vue typologique;

qu'aux fins d'en tenir compte dans une certaine mesure et pour éviter que des altérations supplémentaires ne soient portées au caractère intérieur des appartements et de leurs éléments caractéristiques, tels que distribution des pièces, cloisons, parquets, etc., il convient d'étendre les effets du présent arrêté à ces éléments, pour autant que ceux-ci subsistent encore;

qu'une telle solution, pleinement conforme aux principes selon lesquels un objet digne de protection doit être considéré comme un tout, n'a nullement pour but de figer durablement la situation et, surtout, n'exclut pas une marge de discussion entre les copropriétaires qui souhaiteraient procéder à certains aménagements de leur appartement et les autorités chargées d'instruire les requêtes y relatives;

qu'il incomberait donc à ces autorités, dans les circonstances mentionnées au paragraphe précédent, d'opérer une pesée des intérêts en présence, qui tienne compte des intérêts légitimes des copropriétaires, respectivement, des nécessités découlant de la protection du patrimoine, pour autant que celles-ci restent raisonnables;

qu'en ce qui concerne, par ailleurs, d'éventuels travaux de restauration lourds qui pourraient être exécutés, afin d'assurer la protection durable du bâtiment Miremont-le Crêt, il sera loisible aux instances chargées de délivrer les autorisations y relatives de tenir compte, dans toute la mesure du possible, des recommandations faites au terme de l'étude publiée dans la revue précitée *Patrimoine et Architecture*, pour le traitement des espaces collectifs et des façades de l'immeuble;

qu'il se justifie, enfin, d'étendre les effets de la présente mesure de classement aux espaces extérieurs des parcelles sur lesquelles reposent les bâtiments n° G677 G678, G679, G680 et G681, conformément aux prescriptions de l'article 11 alinéa 1 lettre a) LPMNS, en vertu duquel l'arrêté de classement doit déterminer, au besoin, les abords de l'immeuble classé;

vu la loi sur la protection des monuments, de la nature et des sites, du 4 juin 1976, articles 4, 10 et ss. et son règlement d'exécution, notamment ses articles 5, 21 et 22,

ARRÊTE :

1. Les bâtiments n° G677 et G678, sis sur la parcelle n° 1875, fe 73, de la Ville de Genève, section Plainpalais, ainsi que les bâtiments n° G679, G680 et G681, sis sur la parcelle n° 1867, même feuille, même commune, sont déclarés monuments classés.
2. Il en est de même des espaces extérieurs des parcelles ainsi que des locaux communs du rez-de-chaussée desdits bâtiments, en tant qu'ils comportent des éléments caractéristiques de la conception d'origine.
   Les cages d'escalier, en tant que parties communes, et la typologie originale des appartements sont également visées par le présent arrêté.
3. La présente décision peut faire l'objet d'un recours auprès du Tribunal administratif, dans un délai de 30 jours dès sa notification, conformément à la loi sur la protection des monuments, de la nature et des sites, du 4 juin 1976.

Communiqué à:
DAEL 5
CHA 1
Intéressés 94

CONSEIL D'ÉTAT
RÉPUBLIQUE ET CANTON DE GENÈVE

Certifié conforme,
Le chancelier d'Etat:

2.04 PHOTOS FROM THE SAUGEY'S ARCHIVES

PHOTOS SAUGEY

1. Hall. Photo M.-J. Saugey.
(Archives IAUG, Fonds Saugey)

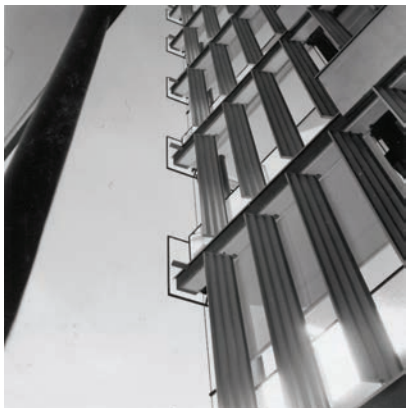
2. Hall. Photo M.-J. Saugey.
(Archives IAUG, Fonds Saugey)

3. Hall. Photo M.-J. Saugey.
(Archives IAUG, Fonds Saugey)

4. Hall. Photo M.-J. Saugey.
(Archives IAUG, Fonds Saugey)

5. Hall. Photo M.-J. Saugey.
(Archives IAUG, Fonds Saugey)

6. North façade. Photo M.-J. Saugey.
(Archives IAUG, Fonds Saugey)



7. Detail of the façade. Photo M.-J. Saugey. (Archives IAUG, Fonds Saugey)

8. South façade. Photo M.-J. Saugey. (Archives IAUG, Fonds Saugey)

9. South entrance. Photo M.-J. Saugey. (Archives IAUG, Fonds Saugey)

10. North entrance. Photo M.-J. Saugey. (Archives IAUG, Fonds Saugey)

11. North entrance. Photo M.-J. Saugey. (Archives IAUG, Fonds Saugey)

12. South façade. Photo M.-J. Saugey. (Archives IAUG, Fonds Saugey)

13. Interior of an apartment. Photot G. Klemm.
(Archives IAUG, Fonds Saugey, no. inv. 3047, cote 205.03.008)

14. Hall. Photot G. Klemm.
(Archives IAUG, Fonds Saugey, no. inv. 3047, cote 205.03.009)

15. Southeast façade. Photot G. Klemm.
(Archives IAUG, Fonds Saugey, no. inv. 3047, cote 205.03.010)

16. Exterior triangular balcony. Photot G. Klemm.
(Archives IAUG, Fonds Saugey, no. inv. 3047, cote 205.03.011)

17. Detail of the façade. Photot G. Klemm.
(Archives IAUG, Fonds Saugey, no. inv. 3047, cote 205.03.012)

18. South entrance. “Réalités”, photo M. Desjardins.
(Archives IAUG, Fonds Saugey, no. inv. 3046, cote 205.03.002)

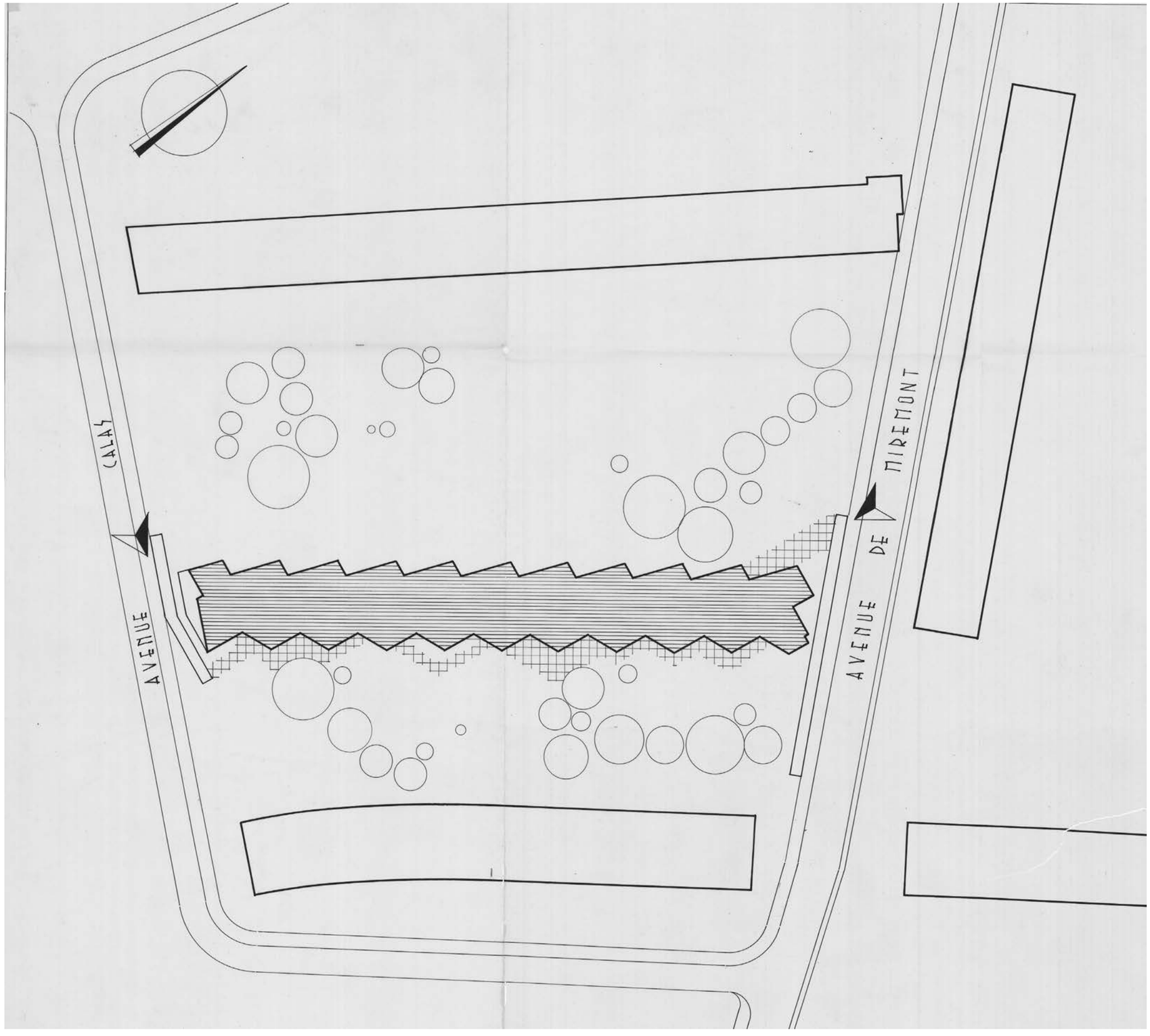
19. Northwest façade. “Réalités”, photo M. Desjardins.
(Archives IAUG, Fonds Saugey, no. inv. 3046, cote 205.03.004)

20. South entrance. “Réalités”, photo M. Desjardins.
(Archives IAUG, Fonds Saugey, no. inv. 3046, cote 205.03.003)

21. Saugey photographed in front of the South entrance. “Réalités”, photo M. Desjardins.
(Archives IAUG, Fonds Saugey, no. inv. 3046, cote 205.03.001)

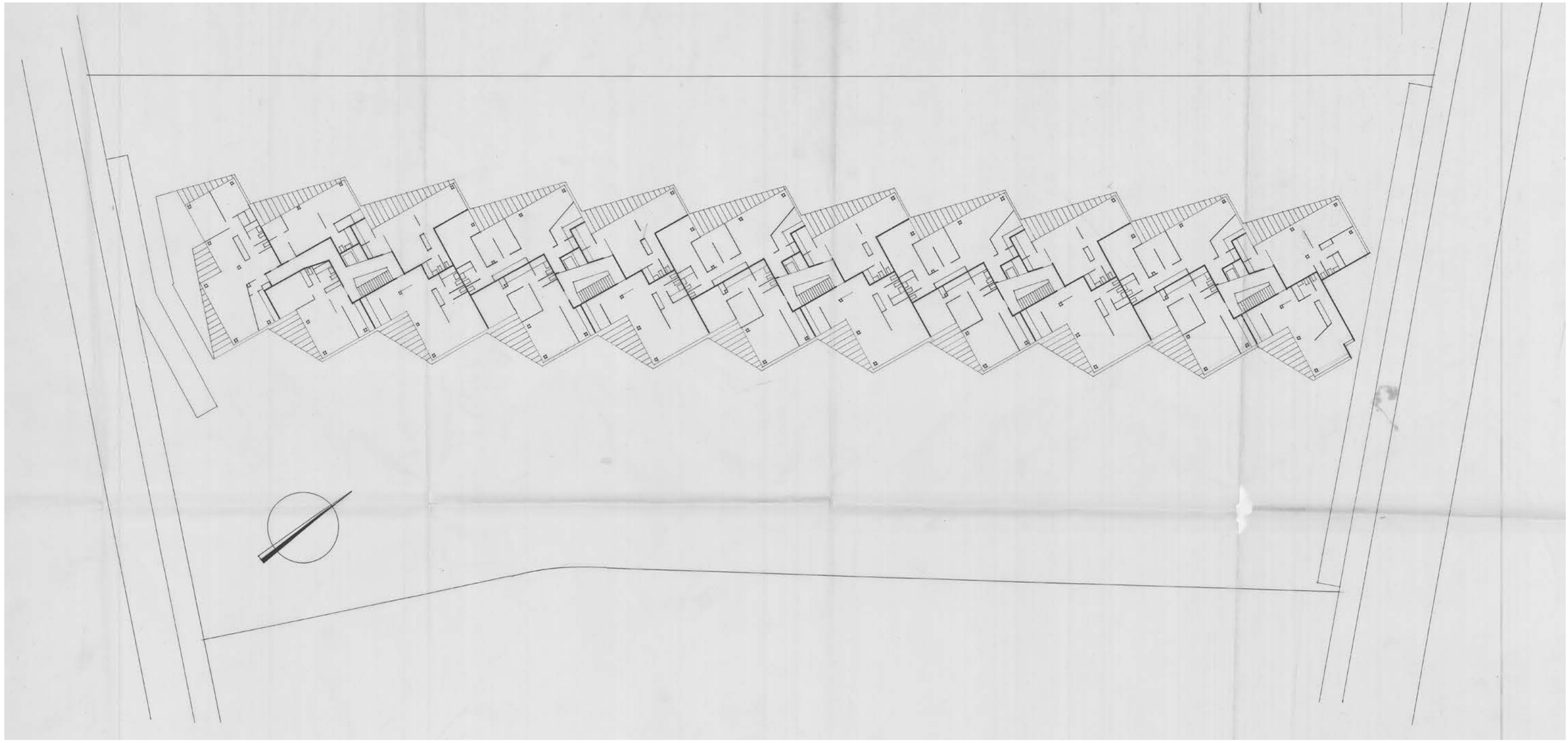
22. South entrance. “Réalités”, photo M. Desjardins.
(Archives IAUG, Fonds Saugey, no. inv. 3046, cote 205.03.007)

2.05 DRAWINGS FROM THE SAUGEY'S ARCHIVES



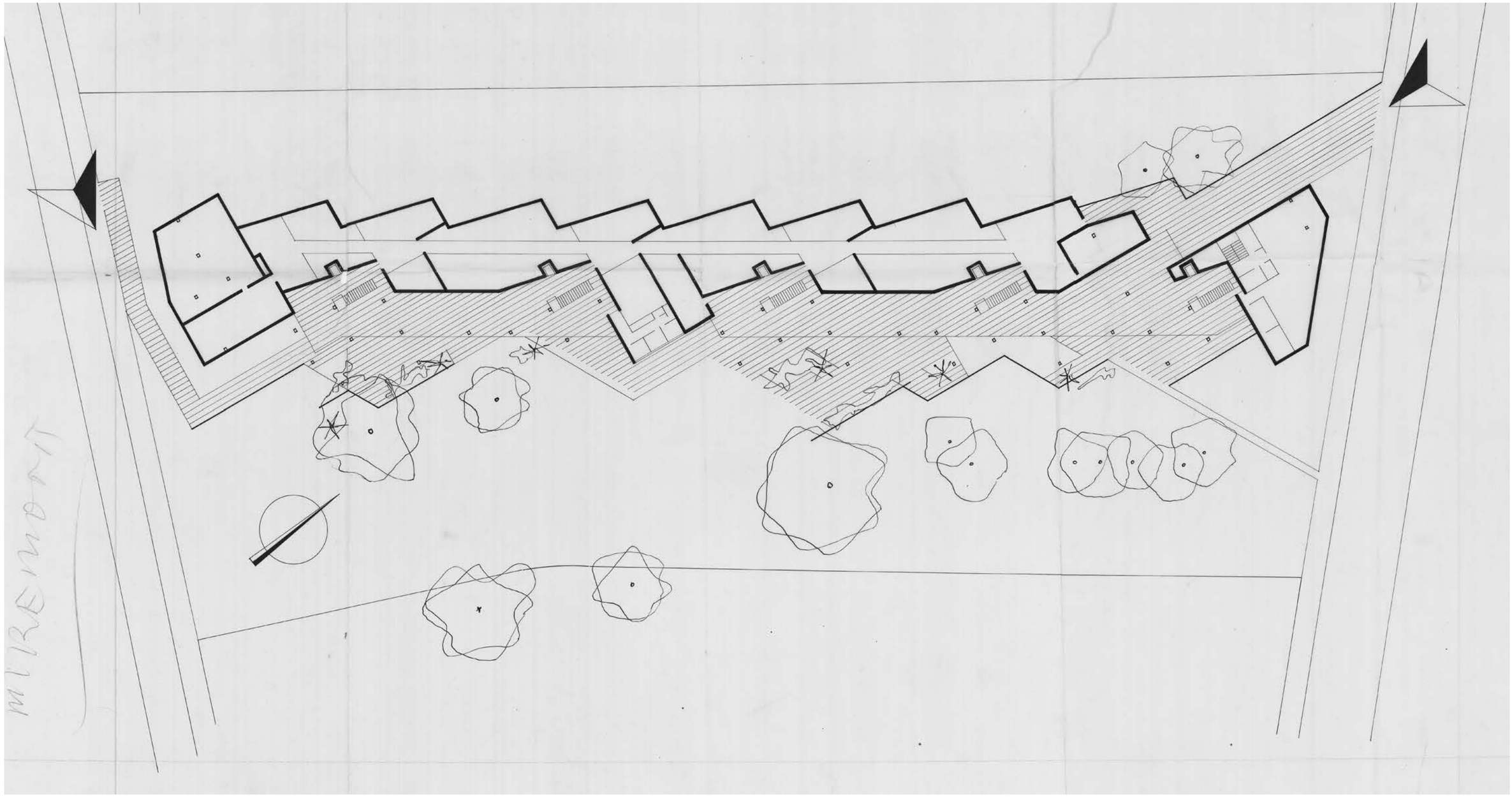
2.05.1 Site plan (not to scale)

Source: Archives IAUG, Fonds Saugey



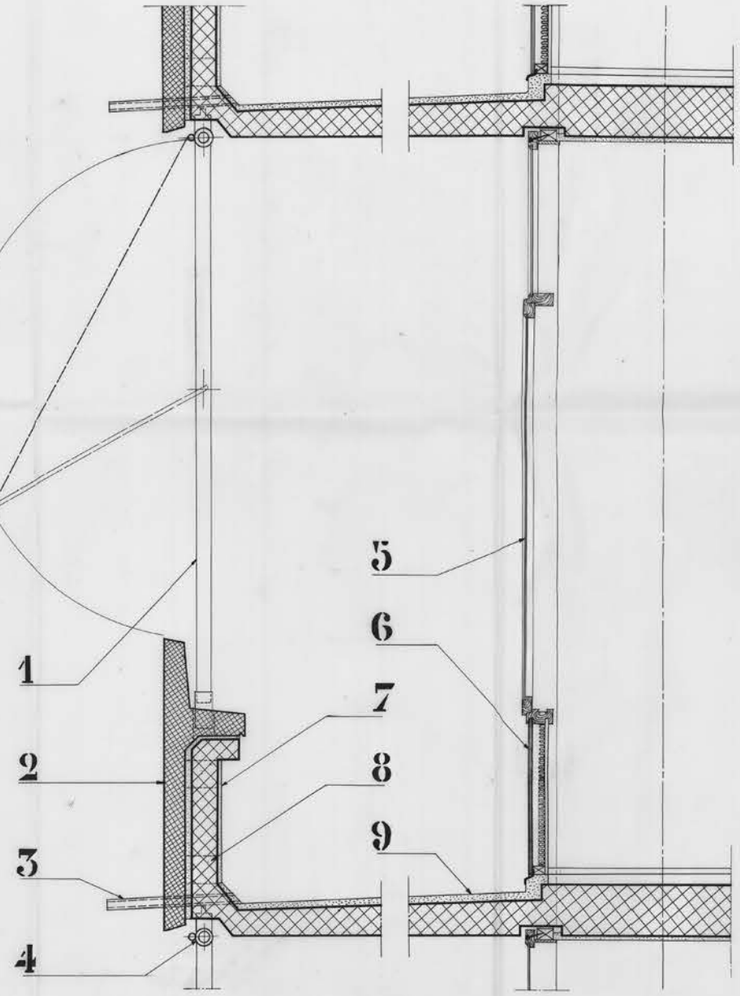
2.05.2 Type floor plan (not to scale)

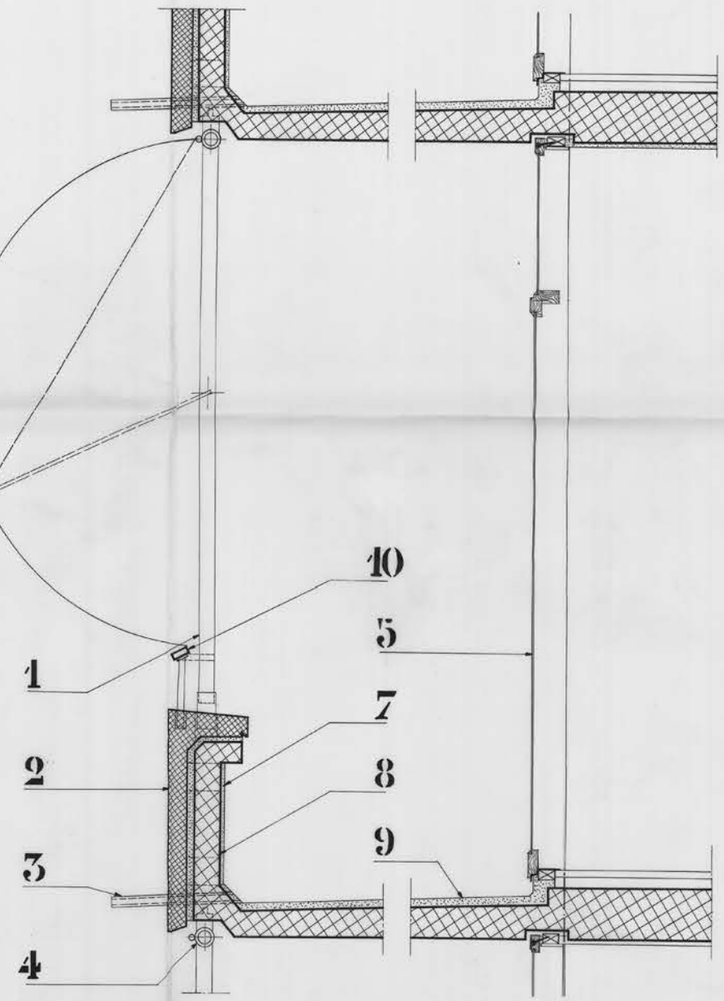
Source: Archives IAUG, Fonds Saugey



2.05.3 Ground floor plan (not to scale)

Source: Archives IAUG, Fonds Saugey





1 MONTANT POUR STORE
2 SIMILI PRÉFABRIQUÉ
3 GOUTTIERE
4 TENTE EN TOILE
5 FENÊTRE OUVRANT EXTERIEUR
6 ALLEGE EN MATÉRIAUX LÉGERS
7 CRÉPISSAGE FIN
8 SOMMIER B.A. COULÉ SUR PLACE
9 CHAPE CIMENT
10 BARRE D'APPUI

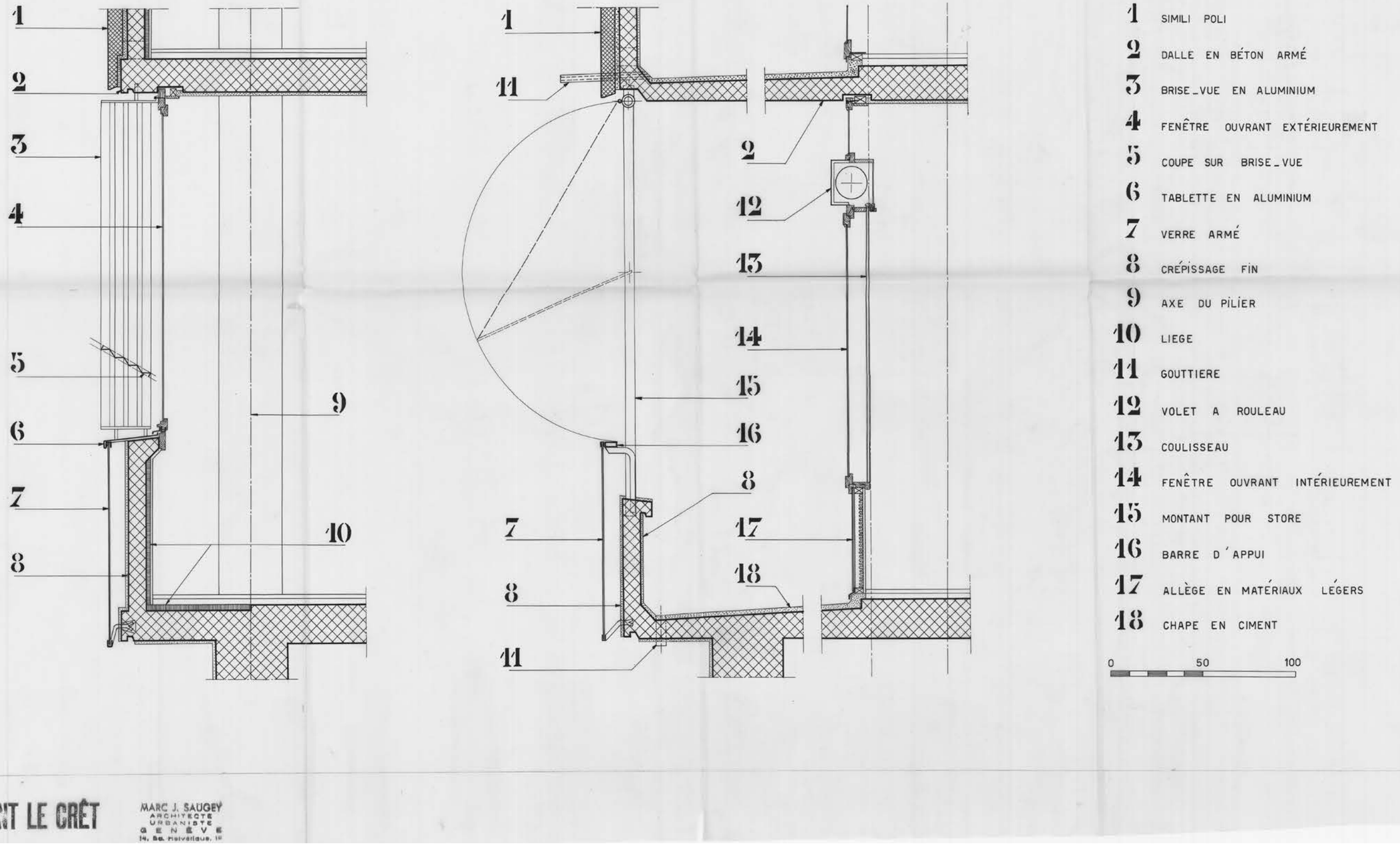
0 50 100

MIREMONT LE CRÊT

MARC J. SAUGEY
ARCHITECTE
URBANISTE
GENÈVE
18, Bd. Helvétique, 14

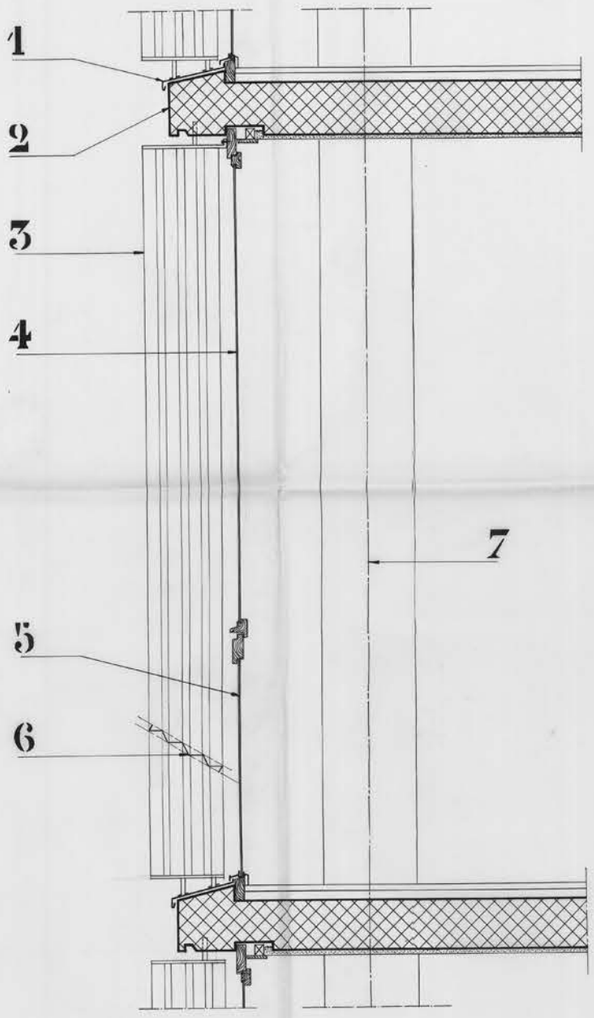
2.05.4 Sections of the façade A

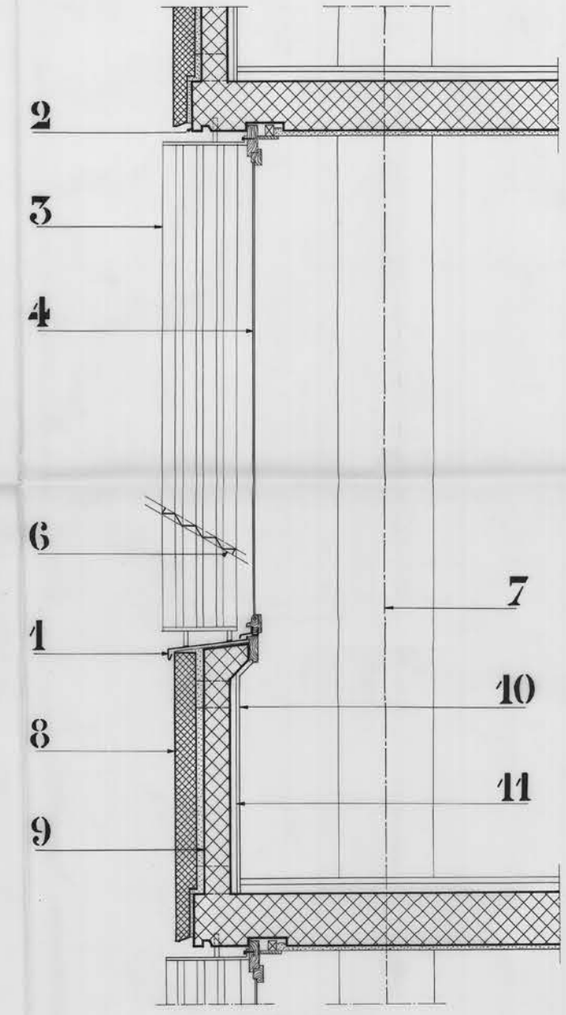
Source: Archives IAUG, Fonds Saugey



2.05.5 Sections of the façade B

Source: Archives IAUG, Fonds Saugey





1 TABLETTE EN ALUMINIUM
2 DALLE EN BÉTON ARMÉ
3 BRISE_VUE EN ALUMINIUM
4 OUVRANT POUR NETTOYAGE
5 VERRE ARMÉ
6 COUPE SUR BRISE_VUE
7 PILIER
8 SIMILI POLI
9 CIMENT DE POSE
10 ENDUIT PLÂTRE
11 LIÈGE

0 50 100

MARC J. SAUGEY
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URBANISTE
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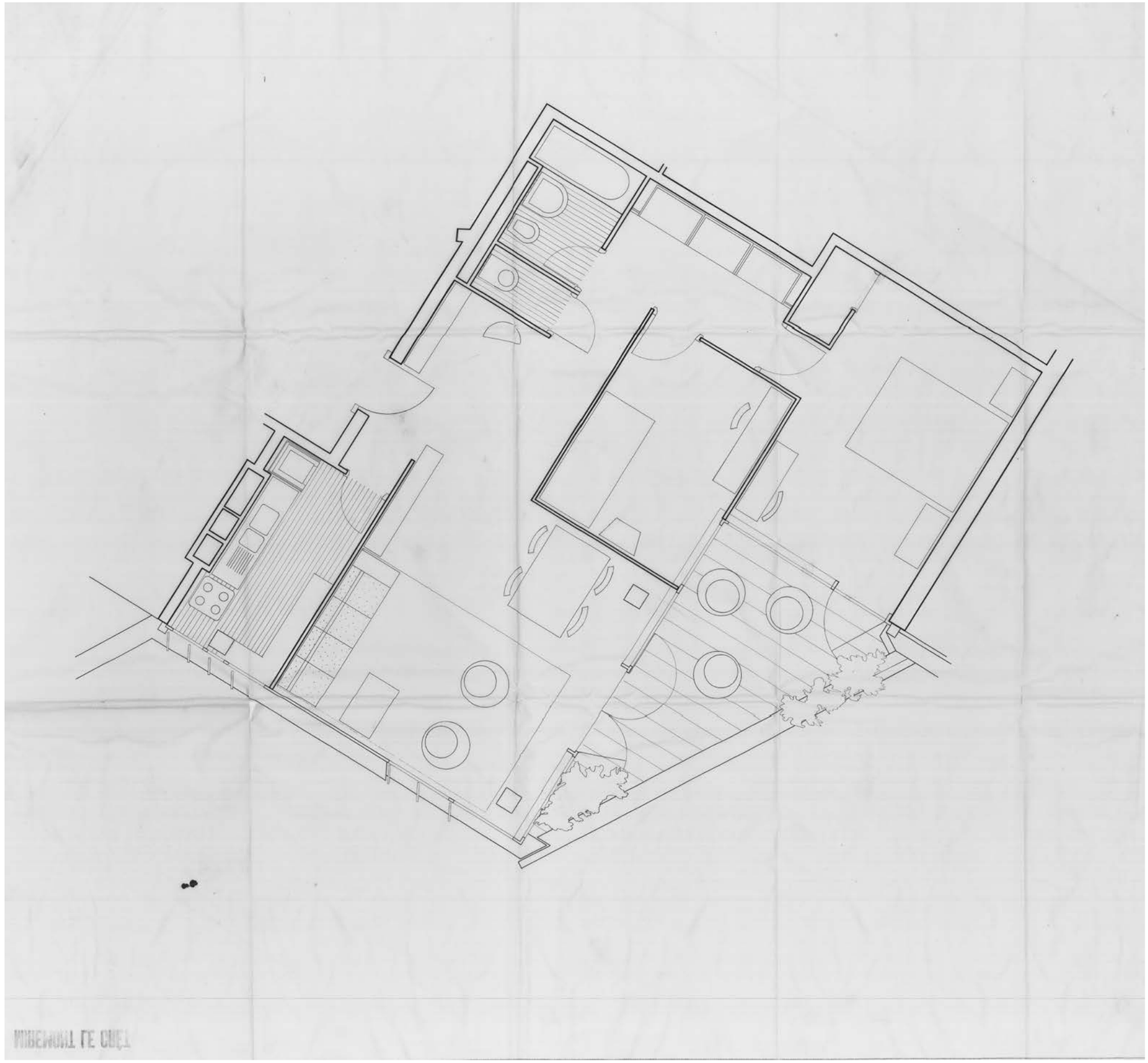
14, Bd. Helvétique, 14

MIREMONT LE CRÊT

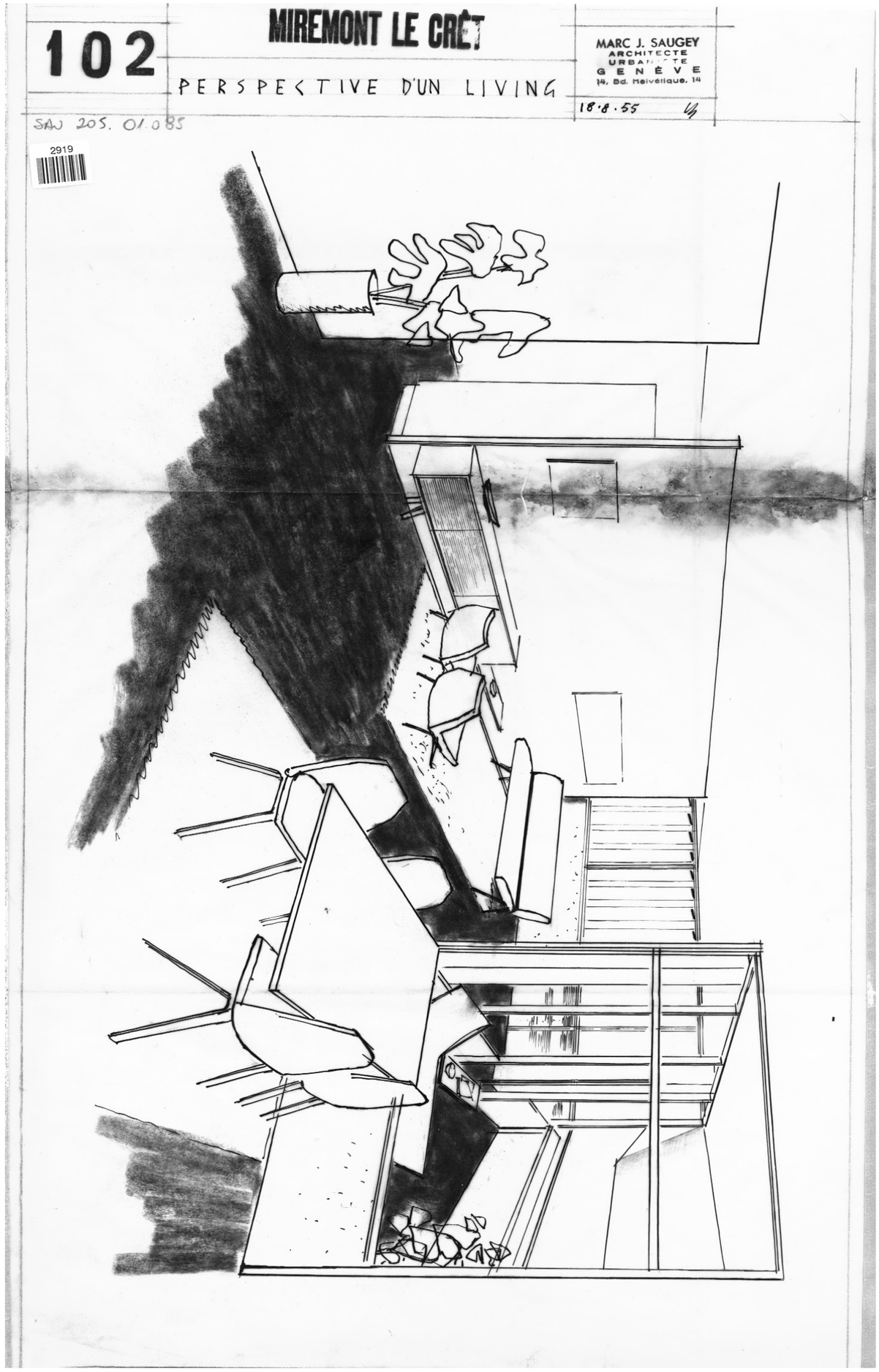
2.05.6 Sections of the façade C

Source: Archives IAUG, Fonds Saugey



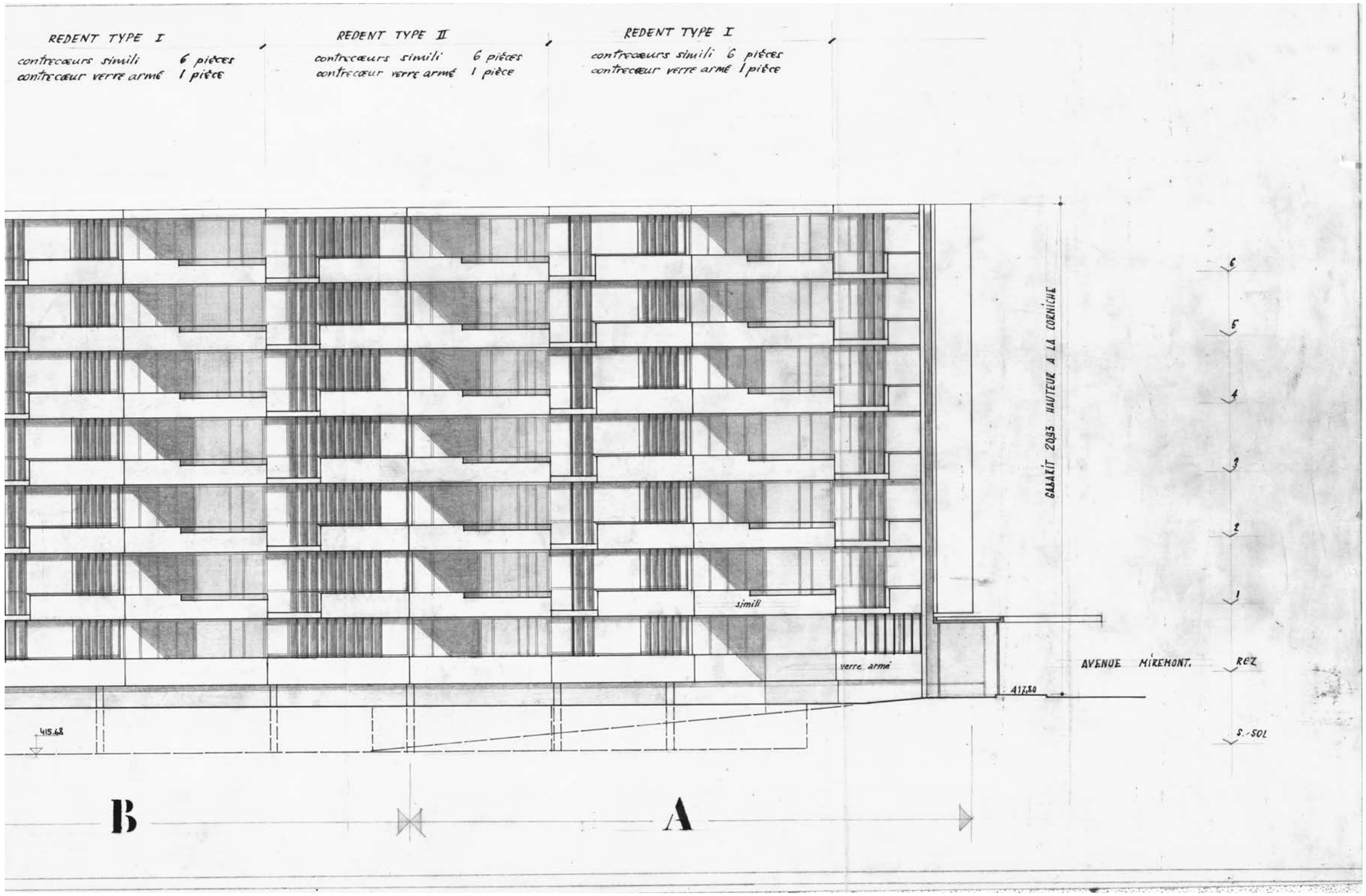
2.05.7 Detailed plan of an apartment (not to scale)

Source: Archives IAUG, Fonds Saugey



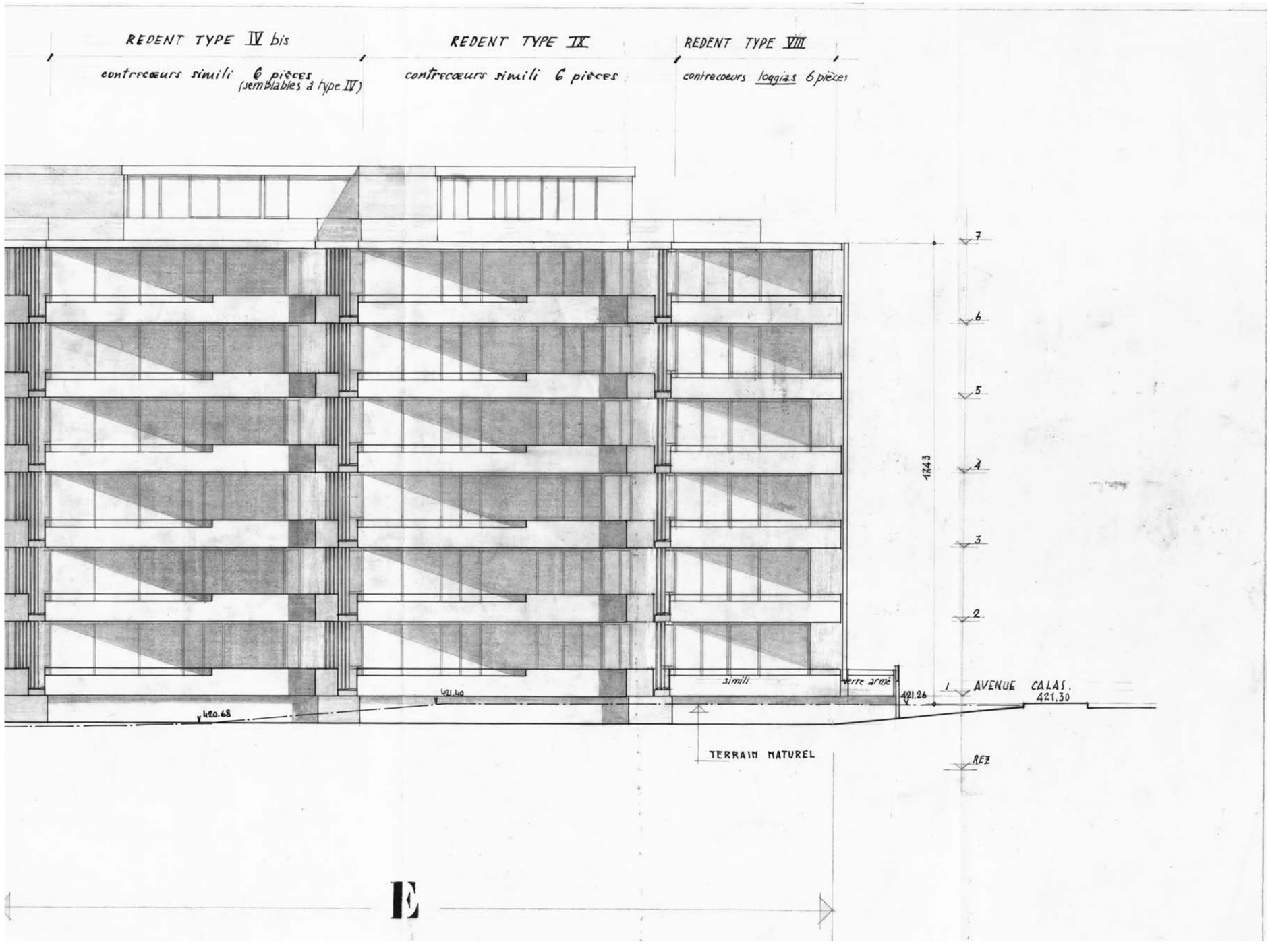
2.05.8 Perspective view of the living

Source: Archives IAUG, Fonds Saugey



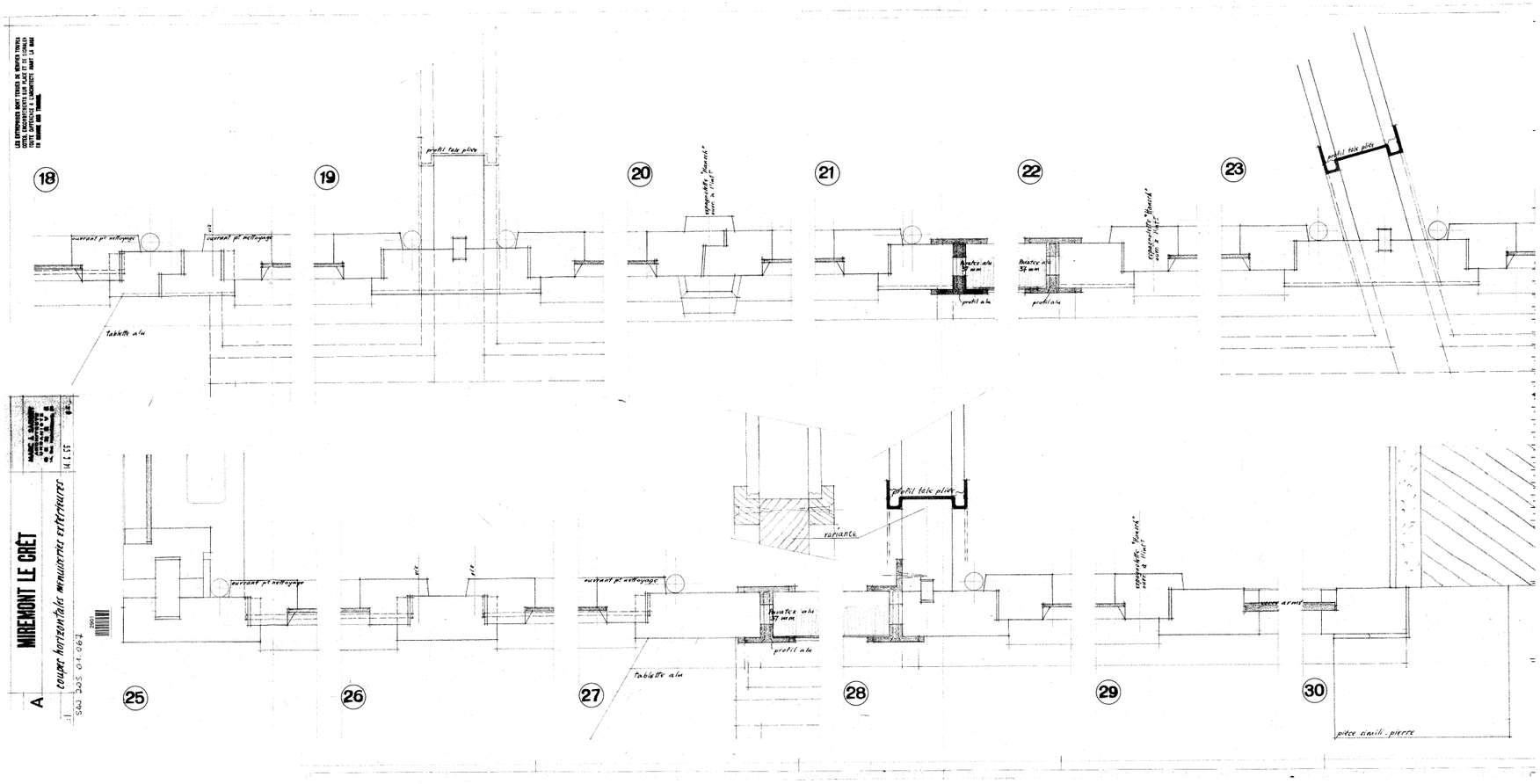
2.05.9 Elevation A, Southeast façade (not to scale)

Source: Archives IAUG, Fonds Saugey



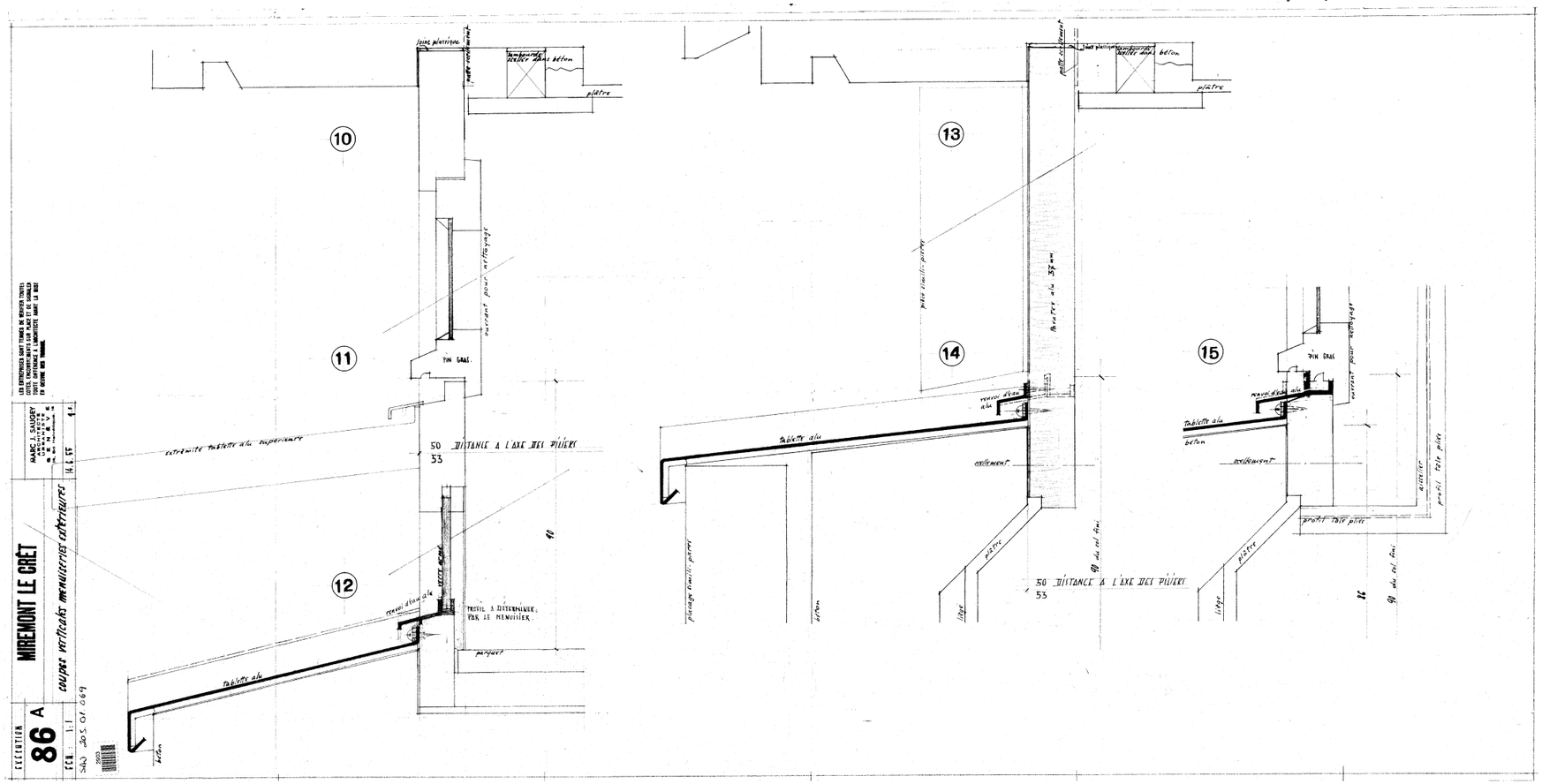
2.05.10 Elevation B, Northwest façade (not to scale)

Source: Archives IAUG, Fonds Saugey



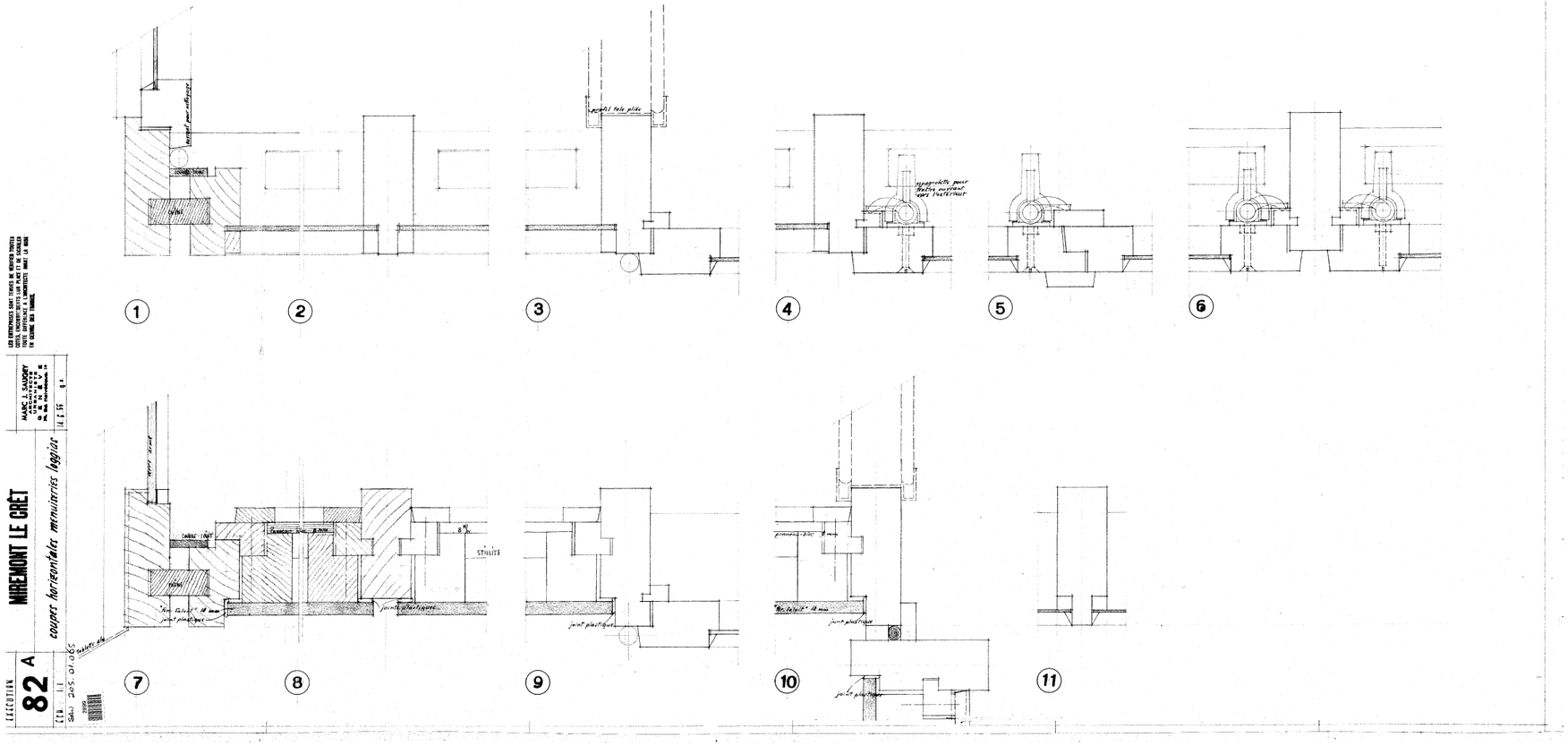
2.05.11 Horizontal section on the exterior window frames (not to scale)

Source: Archives IAUG, Fonds Saugey



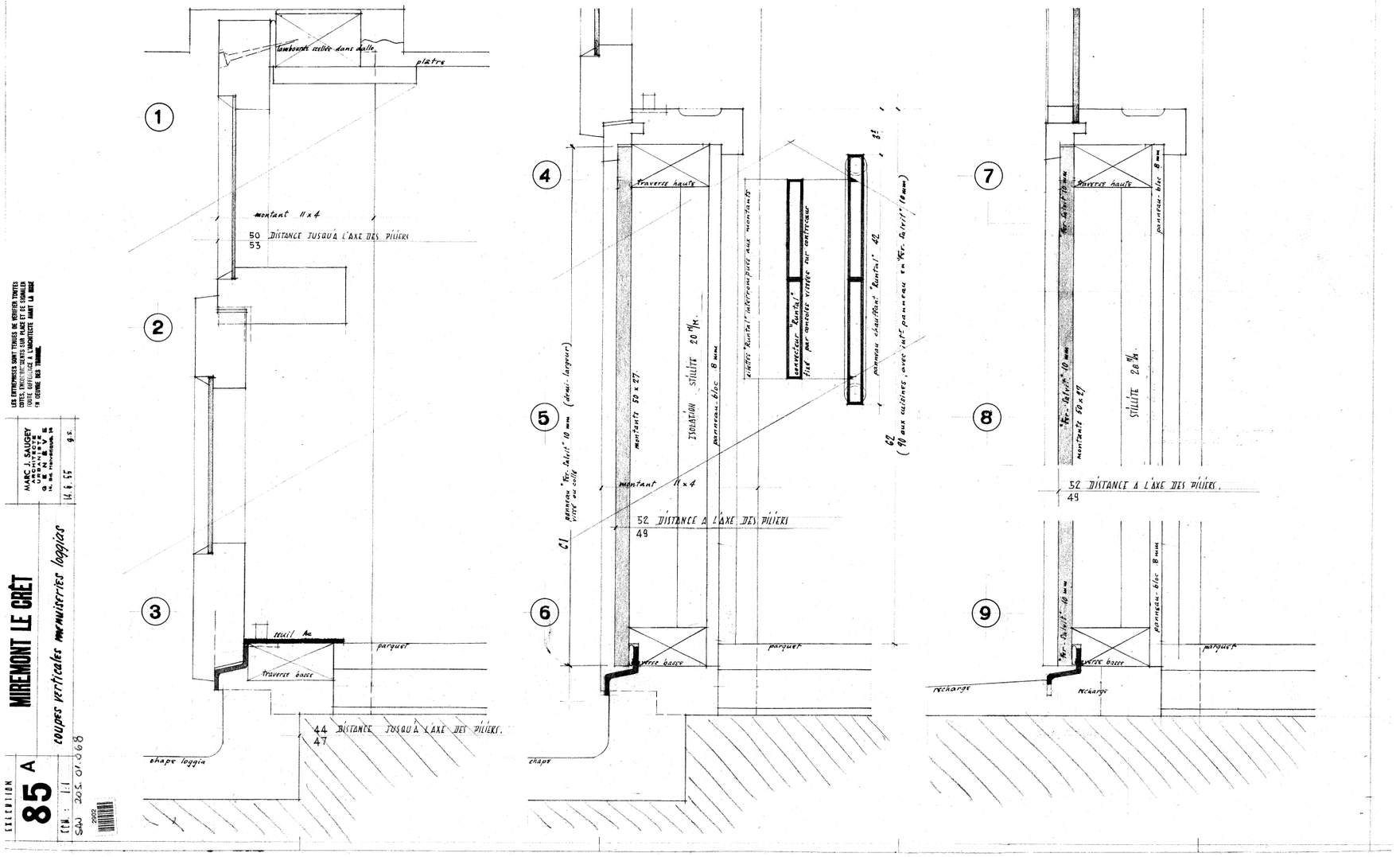
2.05.12 Vertical section on the exterior window frames (not to scale)

Source: Archives IAUG, Fonds Saugey



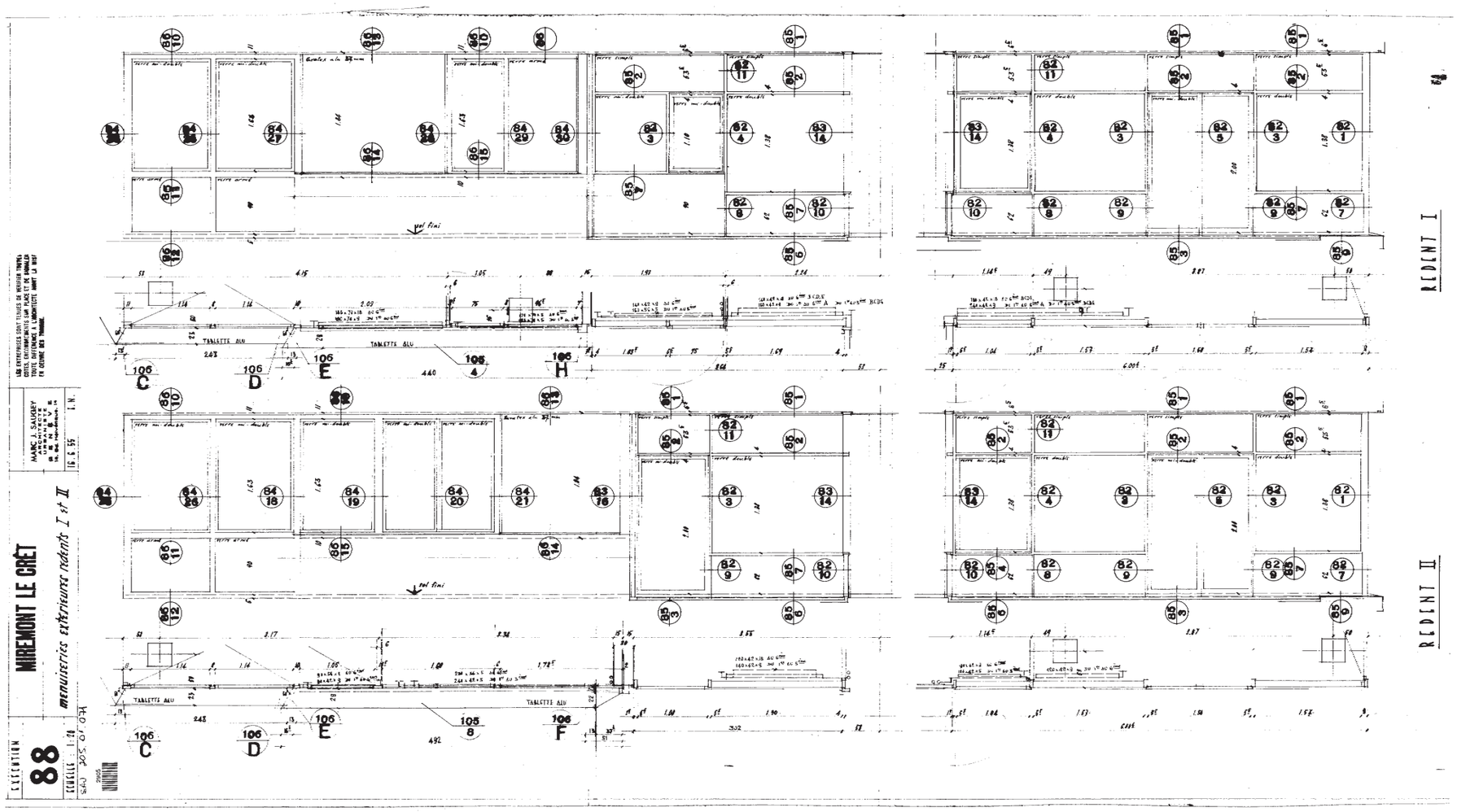
2.05.13 Horizontal section on the balconies' window frames (not to scale)

Source: Archives IAUG, Fonds Saugey



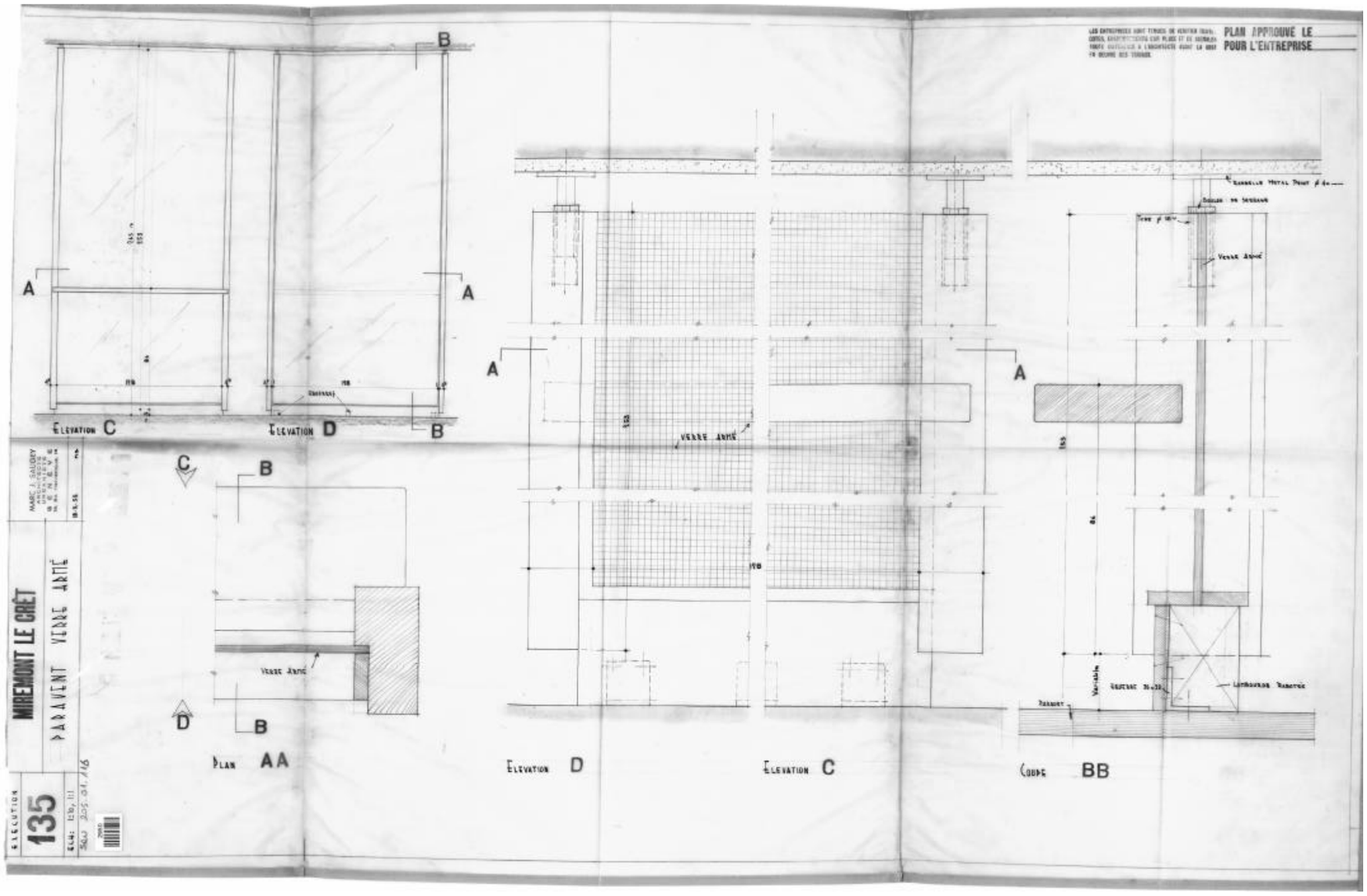
2.05.14 Vertical section on the balconies' window frames (not to scale)

Source: Archives IAUG, Fonds Saugey



2.05.15 Window frames' elevations (not to scale)

Source: Archives IAUG, Fonds Saugey



2.05.16 Detail of the wired glass parapet (not to scale)

Source: Archives IAUG, Fonds Saugey

EXECUTION

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ECHELLE 1:1

SAJ 205 01.128

MIREMONT LE CRÊT

PANNEAU „GRISODUR" ALU.

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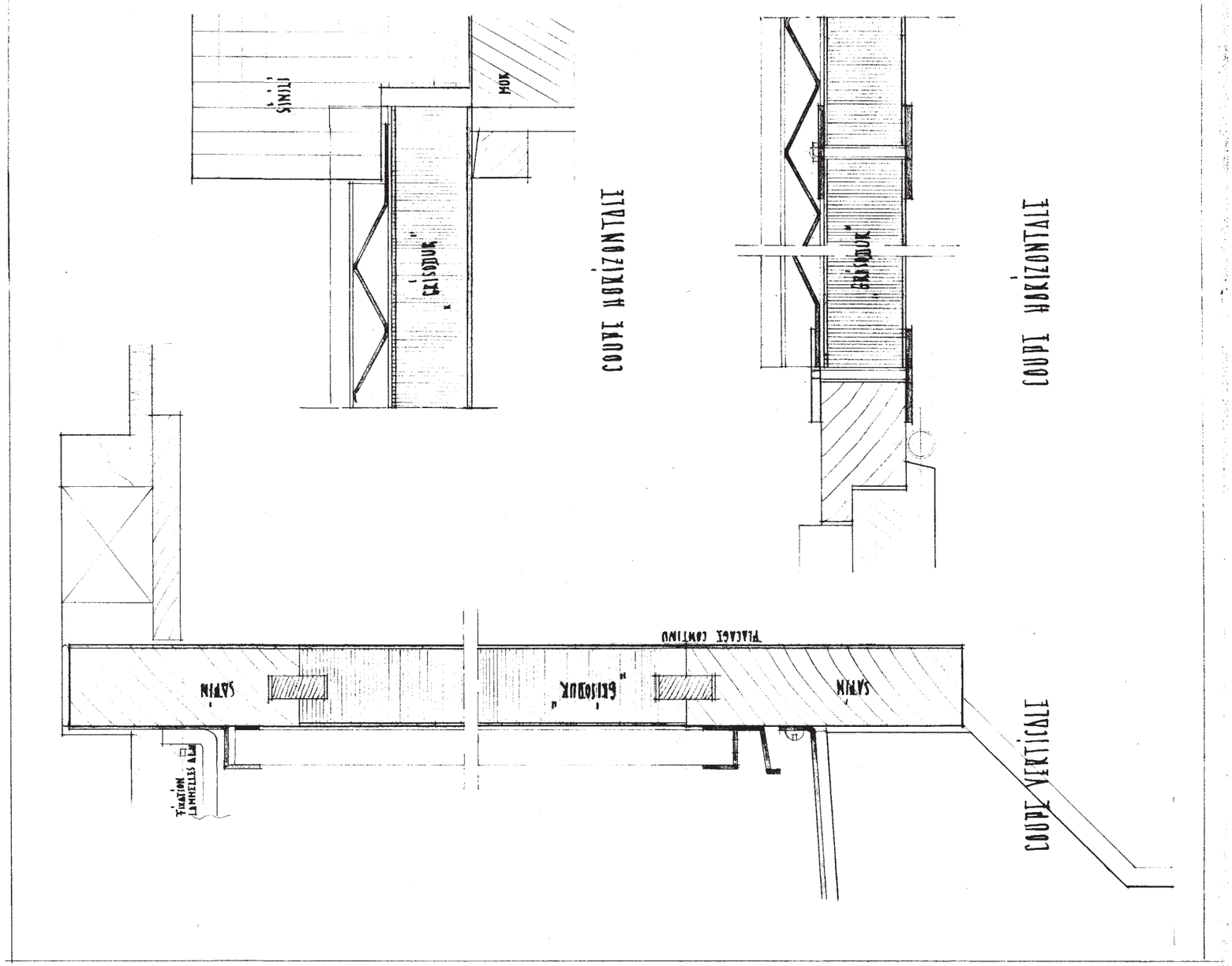
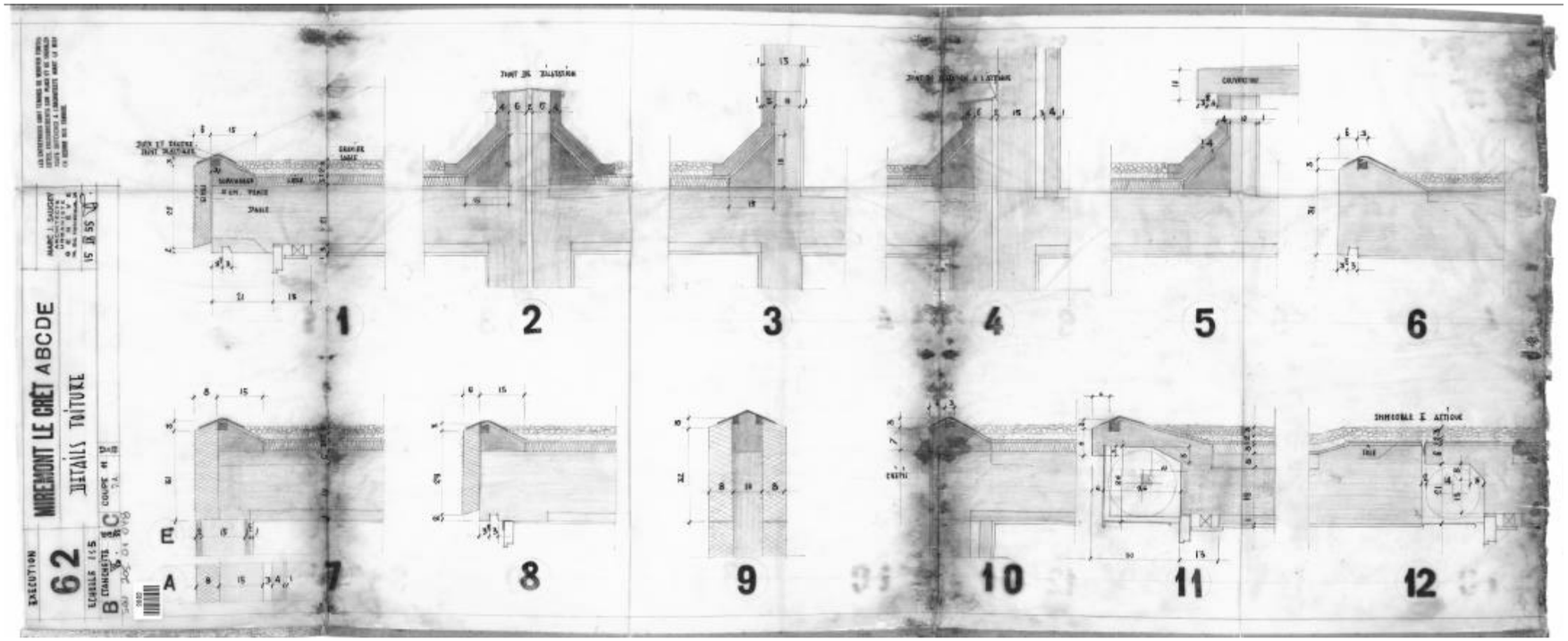
LE 17 I 56

2962



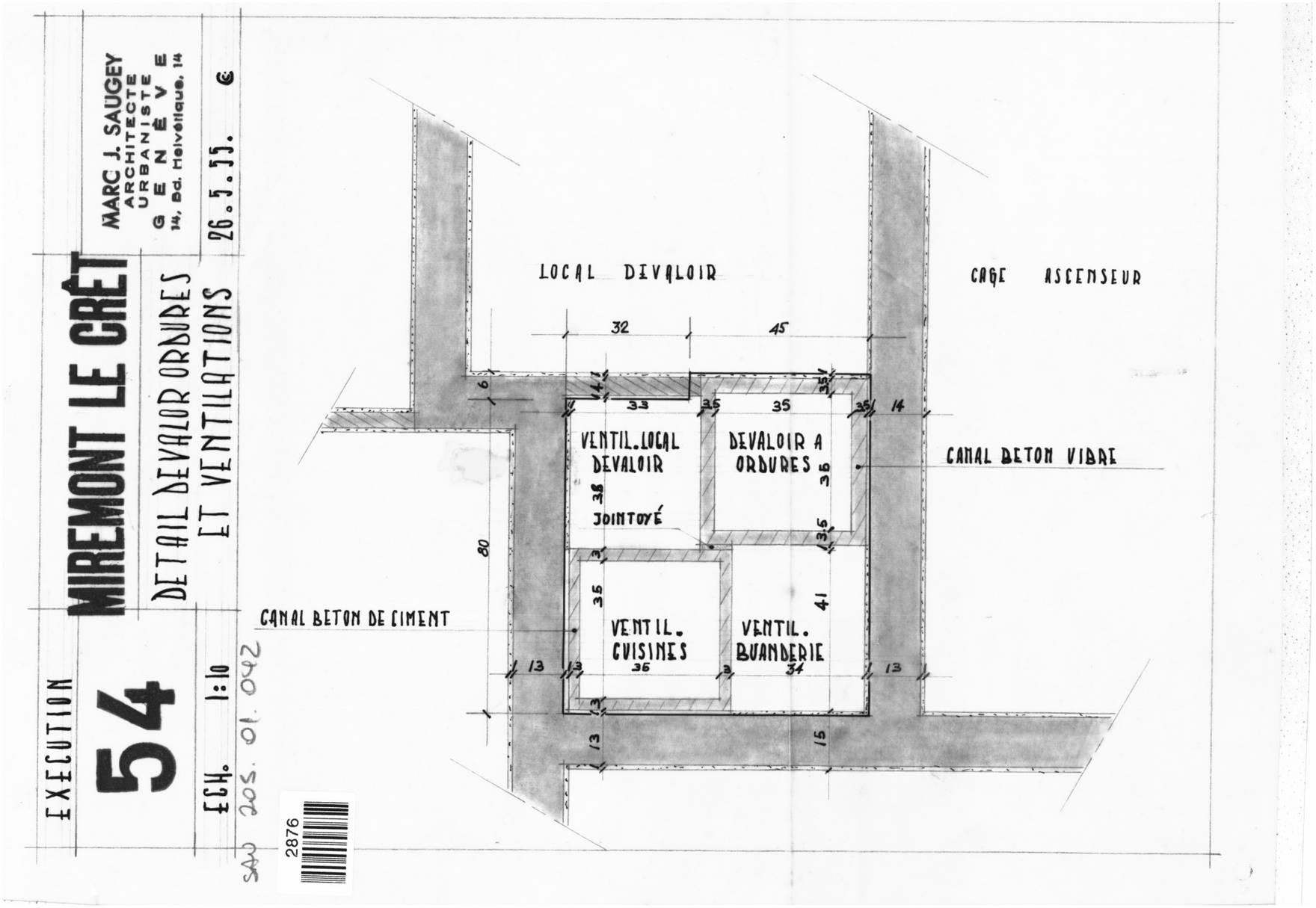
2.05.17 Detail of the “Grisodur” panel (not to scale)

Source: Archives IAUG, Fonds Saugey



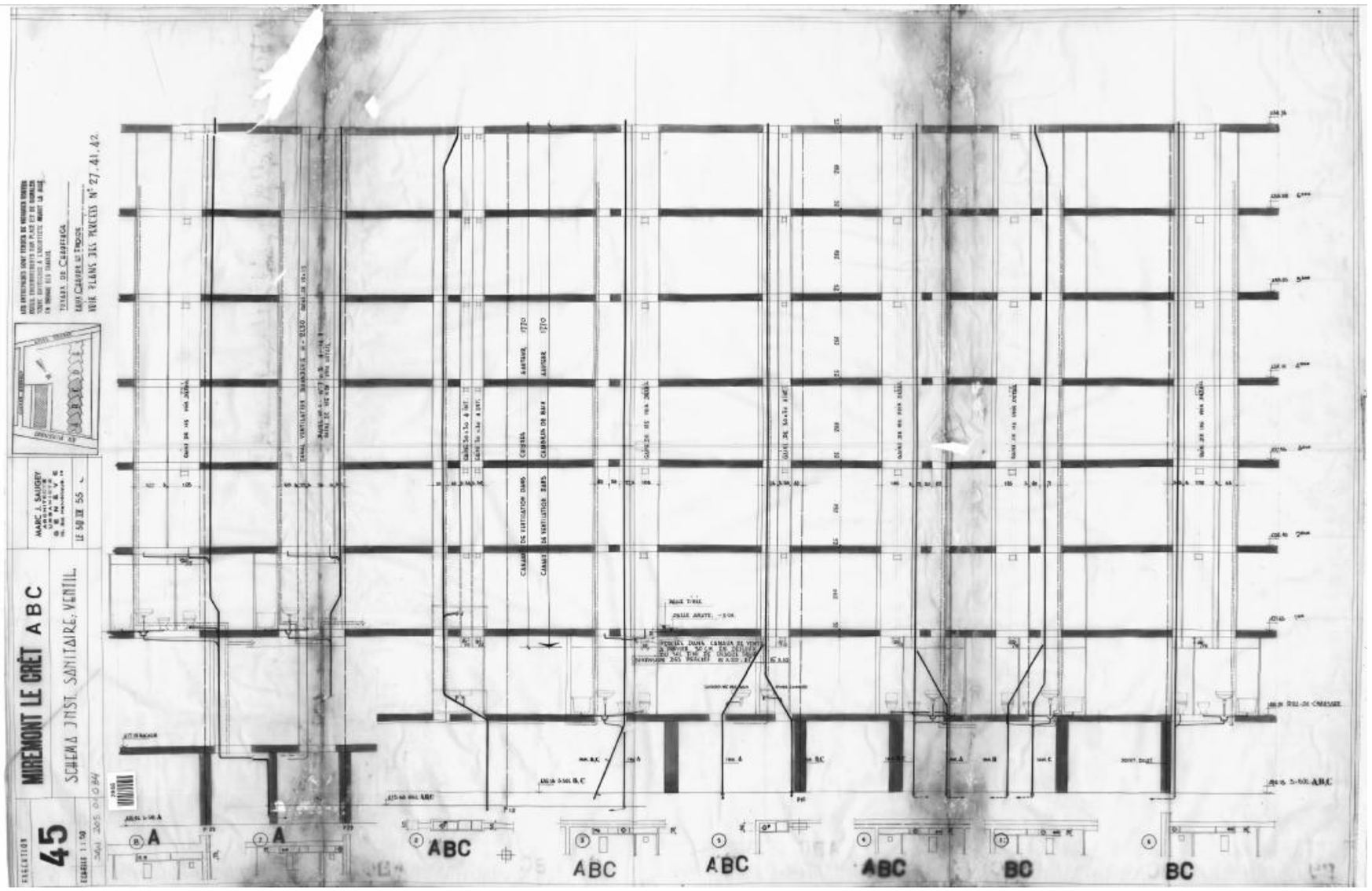
2.05.18 Detail of the original roof (not to scale)

Source: Archives IAUG, Fonds Saugey



2.05.19 Garbage chutes conduit (not to scale)

Source: Archives IAUG, Fonds Saugey



2.05.20 Scheme of the piping system (not to scale)

Source: Archives IAUG, Fonds Saugey