



Le Corbusier, Curutchet House, La Plata 1948

BALUSTRADES

JULIUS BOKOR

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## INTRODUCTION

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There are very few architectural elements that are functional, in the modern sense, yet define style as does the balustrade. A combination of utility and fancy, it effortlessly serves as an identifier of the historical period in which it is erected. This brief review, confined to examples from western civilisation, attempts to illustrate this, a theory that appears to have not received much attention in architectural studies. There is little evidence that balustrades, as an element in their own right, were used extensively before the Renaissance in Italy.

(However, the word 'Balustrade' apparently derives from the name of the bud of the pomegranate plant, used in Ancient Roman candelabra and similar objects, as a decorative motif). The earliest examples were probably in Ancient Rome, where the external access balconies to the apartments in the multi storied insulae had bronze balustrades with a diagonal pattern, as well as circi. These are clearly illustrated in the drawings of the hypothetical reconstructions of ancient Roman buildings by the Prix de Rome recipients and other scholars.



*Wall extended to form "balustrade" Openings functional.*

Most protection to edges of elevated building platforms were an extension of the wall itself, sometimes with openings for defence, or walls perforated to act as screens, in cathedrals and the like. Crenellations are a form of this wall extension. Such wall extensions continued to be designed into this century when architects attempting to avoid anything that could be construed as decoration, simply used the continuation of the wall as a safety measure. As high-rise buildings became common, new materials became available requiring stricter regulations and it gradually became more difficult to innovate in design.

Outdoor living areas, terraces and balconies became more common when the safety of the cities improved, and were popular in Venice where they offered relief from the heat, catching the breezes, in the humid summers. Designers of the renaissance, searching for a classical motif to incorporate as a new building element developed the form of what has come to be known as the balustrade. They probably reinterpreted the Roman candelabra using stone balusters in the shape of the bud, capped by stone coping. This was used possibly first, in Venice around 1480, and then in Palladio's Basilica in Vicenza.



*Piazza del Campidoglio, Rome  
1546*



*“Milk bottles” in colloquial terminology*



*Post War Australian Housing, Australia  
1950*

But it was In Rome, in 1502, when Donato Bramante used a double bud design to enclose the Tempietto, causing a sensation in artistic circles. Its influence was beyond its modest size, and was widely copied and modified until it became a defining element of the architecture of the time and is even used today in a naïve out of scale interpretation in the houses of the newly rich as a representation of class and style. Clearly a status symbol mimicking the historical homes of the powerful.

Michelangelo modified the balusters to have the centre of gravity lower, eliminating the top bud and used it throughout multiple buildings, as seen in the 3 buildings fronting at the Piazza di Campidoglio. It was this design that became the standard form, and was used widely in Italy and throughout Renaissance Europe. As balconies became more common and the openings full door height, its use became widespread. Using the same materials as the host walls, it became part of the building fabric itself. As outdoor living intensified, pleasure gardens developed and it was used on terraces. This required a primary structure of pillars to stabilise the stone balustrade, especially in public structures such as bridges and gardens. At the same time, slender, elegant iron handrails are widely used for safety and convenience. This hardly compromised the integrity of the host buildings and can be seen on the Cloisters of Santa Maria Della Pace, 1504, or the earlier Leaning Tower of Pisa.

*Stone Balustrade, design based on Roman metal domestic objects*



Tempietto of Bramante, Rome  
1502





Belvedere Palace Gates, Vienna  
Austria 1723

Terrace House, Paddington  
Australia 1865

As cities within walls became more densely populated, buildings of several stories developed with small balconies for fresh air, and where women had privacy. As the availability of iron improved, for the first-time building elements in a material different to the host walls were used and designed to be made in a workshop. This was wrought iron, and its design reflected the current taste. The cost and availability of materials and the need to ensure the safety of the occupants were a consideration. Initially used as fencing, gates and the like, the invention of casting gave impetus to mass produced designs. The connection between the use of new available practical materials and the influence of regulations became paramount. However, safety considerations and prescriptive regulations discouraged invention, and even the foremost

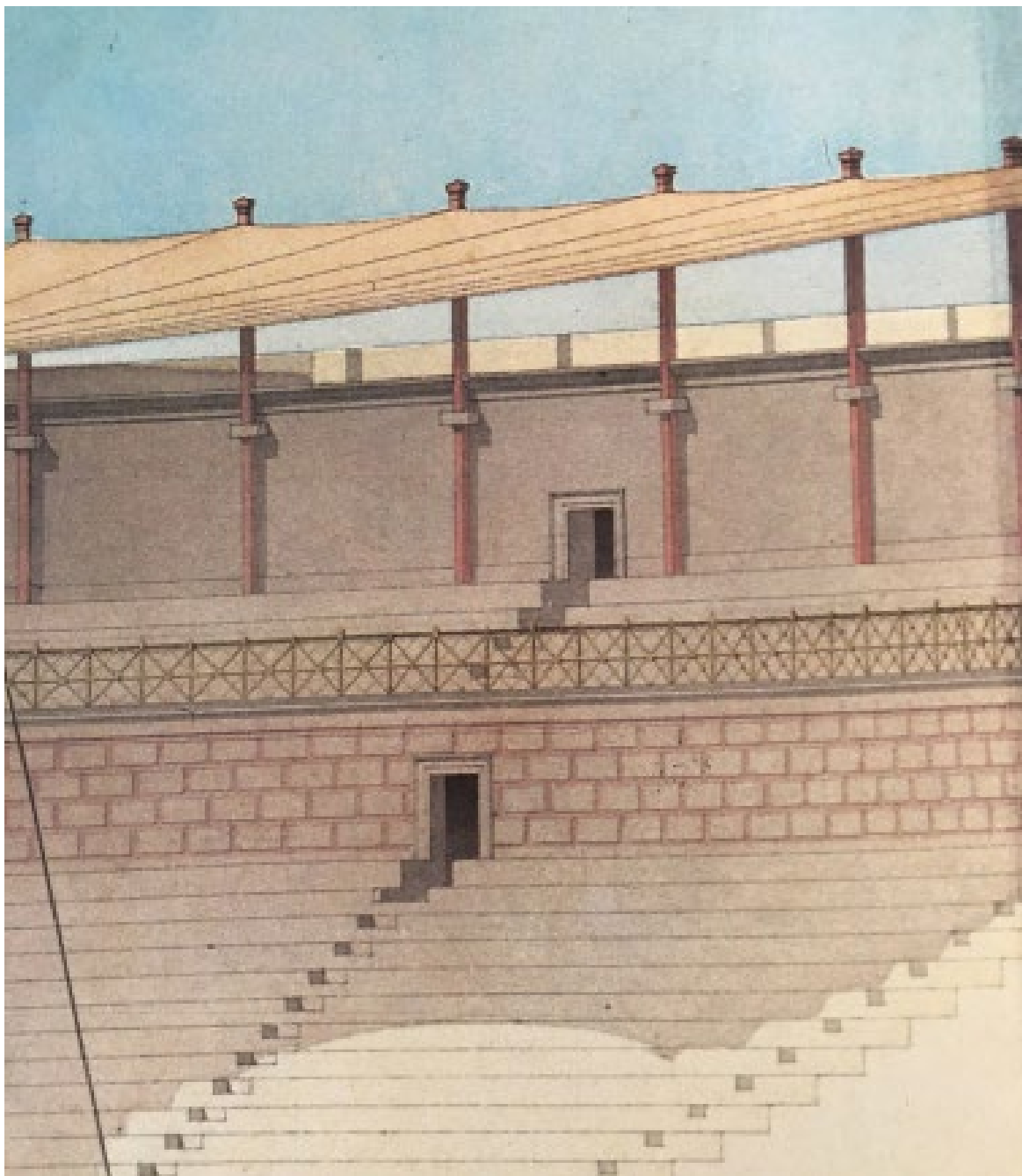
practitioners were reduced to using the standard accepted designs, so the balustrade today has lost its playful style and historical reference. At best, eminent practitioners have manipulated the form to produce variety, or retreated into using the wall as balustrading. Amongst other new systems, the invention of safety glass has resulted in an expression of the function without much character. The list of historical balustrades that are no longer approved for safety reasons is endless. Think of the wonderful variety of the cast iron balustrades of Victorian houses, endless variety in mass production. These were functional in the climate and added a texture to the humblest dwelling. We have lost a rich vein of innovation, hopefully it will give rise to the innovative development of the standard.

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## Chronological review

*Mostly based on the author's photos and drawings*



*Conjecture of Roman Bronze Balustrades.  
Reconstruction by winners of the Prix de Rome studies based on the  
excavation at Pompei, Italy.*





*Evidence of the use of balustrades prominently featured*

*The Wedding at Cana - Paolo Veronese 1562*

The history of using new available practical materials and the influence of regulations became influential. Sadly, the safety considerations and prescriptive regulations discouraged invention, even the foremost practitioners reduced to using the standard accepted designs, so the balustrade today has lost its playful style and historical reference. The best practitioners have manipulated the form to produce variety, or retreated into using the wall as balustrading.

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*Perforated Screen as "Balustrade" in Gothic Architecture also used as altar screens*



Cathedrale Notre-Dame de Rouen, France.  
Balustrade in wall material

*Wall as "Balustrade"*



Santa Maria de La Pace, 1504.  
Cloisters by Donato Bramante.



*Palazzo Vendramin, Venice - Italy.  
One of the first uses of balustrades externally.*

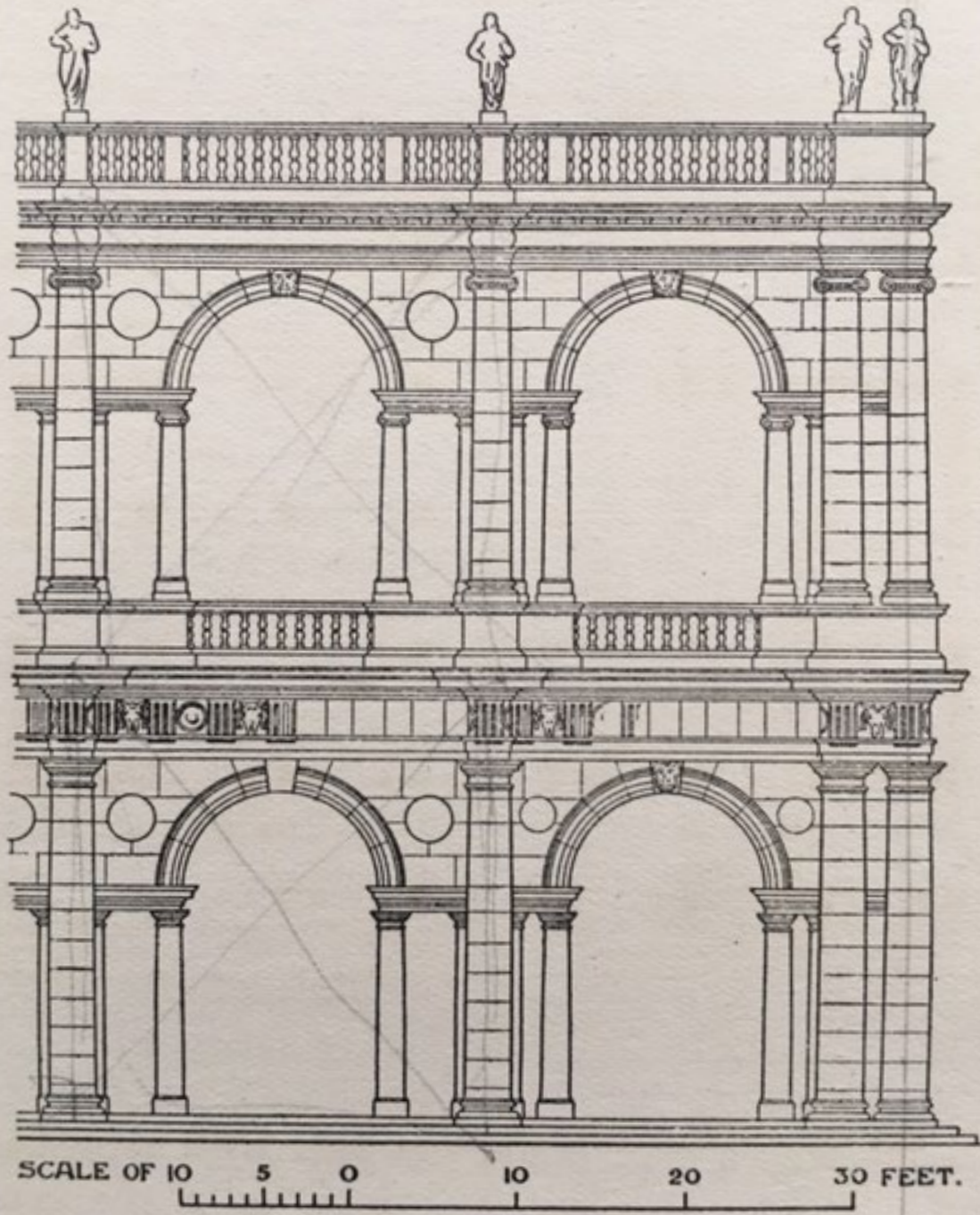


*Photo: Alinari.*

FIG. 32.—PALAZZO VENDRAMIN CALERGI, VENICE.

*U.S. Gov. P. 83*

# BASILICA, VICENZA.



*Palladio developed and codified motifs, widely disseminated pattern books for those that could not visit, measure originals in Italy.*



*Cloisters of Santa Maria de La Pace, 1504.*

*Wrought iron used for safety , sparing use of wrought iron as handrail.*



*Safety on public structures encouraged balustrades, with reinforcing pillars.*



*Typical limestone balustrade, Paris.*



Decorative Wrought iron gate and fence.  
Buckingham Palace Gates, London.





Wrought iron used for safety ,  
Lantern of Florence Dome.

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ANCIEN HOTEL GITTARD

DANIEL GITTARD 1626-1686

REÇUT A 30 ANS LE TITRE D'ARCHITECTE DU ROI

LOUIS XIV LE CHOISIT POUR FONDRE L'ACADEMIE D'ARCHITECTURE

ON LUI DOIT L'HOTEL CAYNE L'HOTEL COSSÉ L'HOTEL LULLI

LE CHOEUR DE ST SULPICE LES FORTIFICATIONS DE BELLE ÎLE

IL SE CONSTRUIT CETTE RESIDENCE EN 1658

1658, Daniele Gittard architect to Louis XIV, tentative use of iron.

Iron smelting improved and supply increased. Technique developed for fences and gates, then in front of the french doors of early houses and apartments.

Hotel Gittard, Paris.

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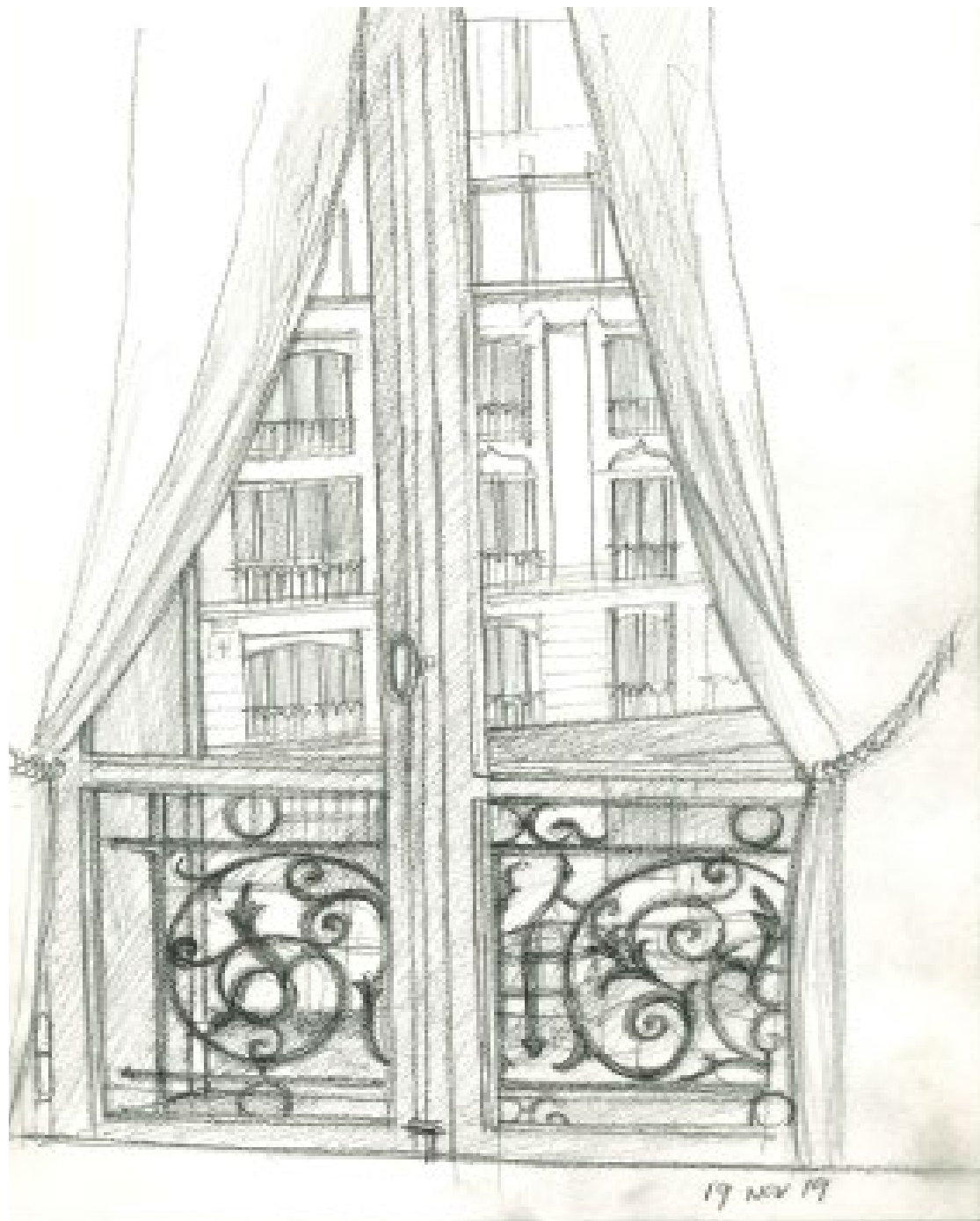




Wrought iron. Hotel de La Valette, Rue des Saints-Peres, Paris.



Georgian, London, restrained use of wrought iron.



By 1897 wrought iron balustrades were available in standard dimensions and patterns for building boom following Haussmann's restructuring of Paris.



Hotel Salé, Picasso Museum Paris, 1656 - Elaborate wrought iron.



Wrought iron manufacture industrialised and stylised.



*Balustrades of all types used sometimes in the same building as multiple materials became available and affordable.*



19th Century, Milan Apartments, a combination of wrought iron and stone balustrades, in industrial production widely used..

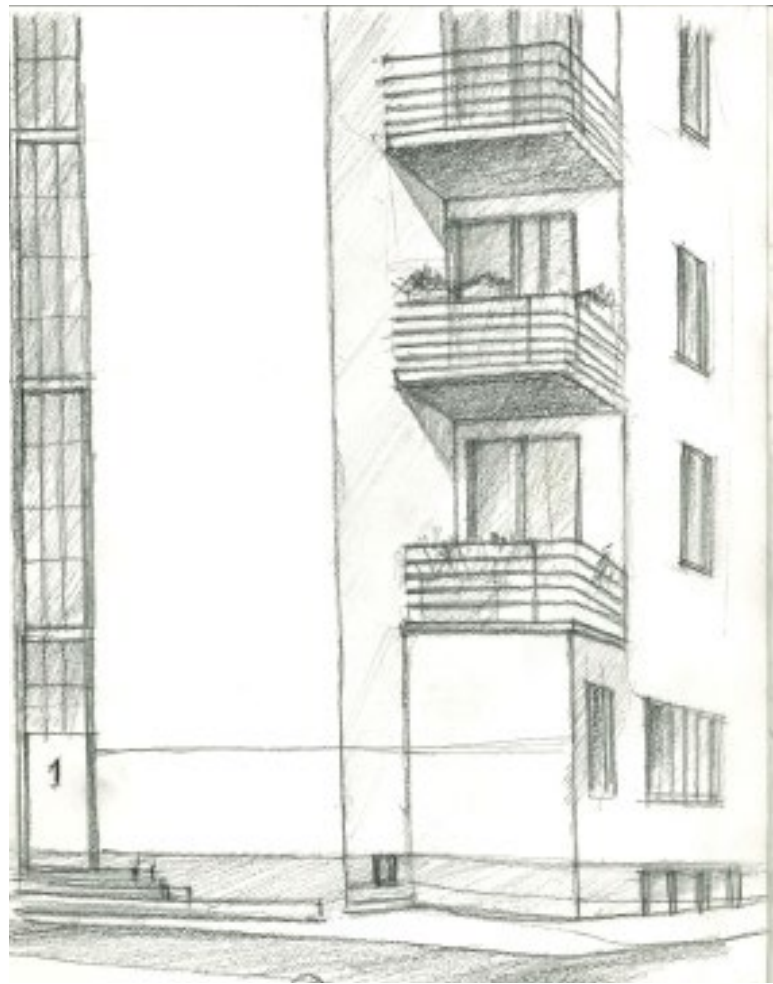


Cast Iron becomes common and readily available.

19th Century terrace houses using relatively affordable cast iron balustrades in many standard patterns.



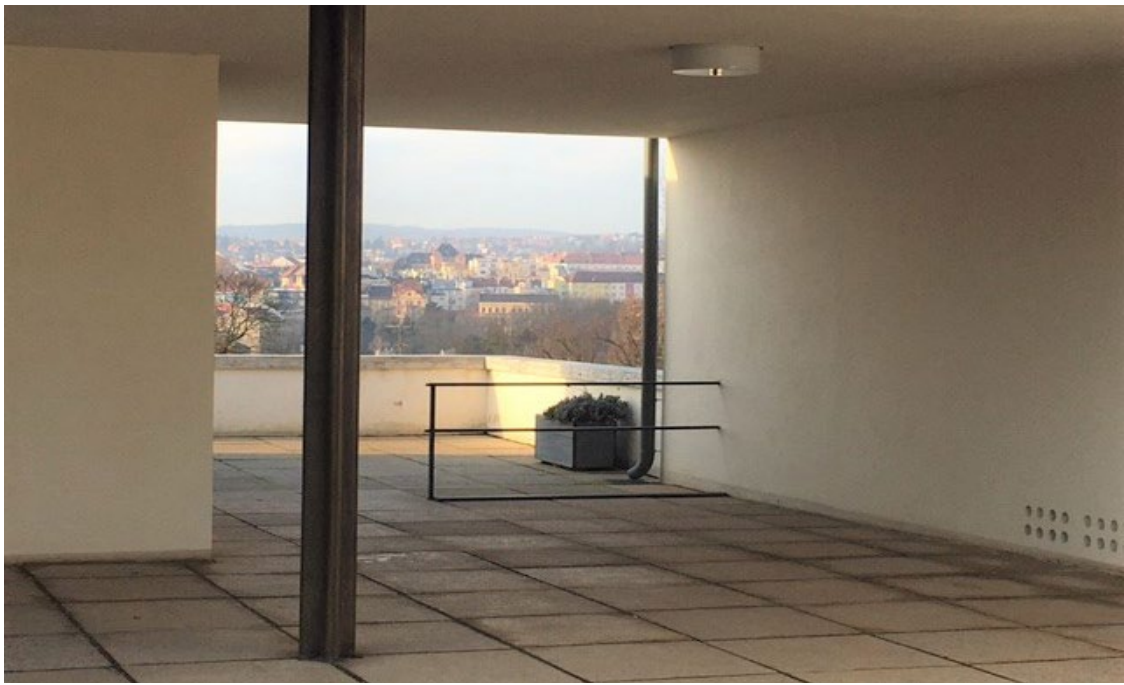
Decorative potential of wrought iron to enliven simple buildings



Modernist admiration for "functional" industrial design.

Bauhaus Dessau Konsum Building, Walter Gropius.

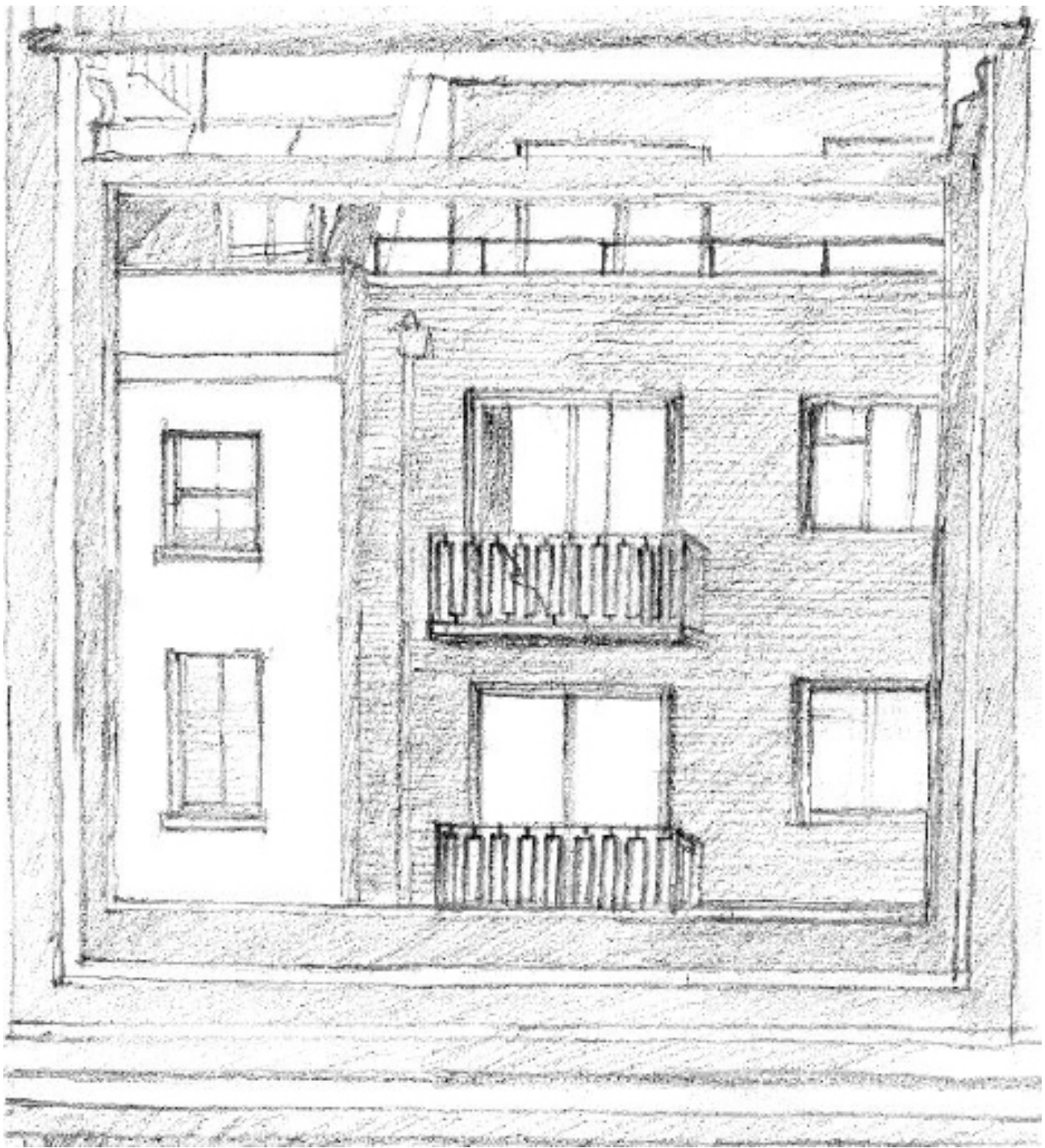




Industrial functional balustrades.  
BRNO, Mies Van der Rohe - Tugendhat House.



Centre Pompidou - Piano Rodgers.  
Handrail follows the prefabricated aesthetic.



Attempt to improve the appeal of standard compliant design, London.





Balstrade design standardised in response to regulation.  
Pilip Cox, Woolloomooloo.



Creative interpretation of "standard" design.  
Paddington Reservoir, Toukin Zulaikha Greer Architects.



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19th Century Symbolic Balustrade Brno.  
Modern Perforated design.



Bauhaus - Museum Dessau.  
Use of brass to refine the appearance of  
standard compliant balustrade.



Subtle enfasis to standardised design.  
Elbphilharmonie by Herzog & de Meuran



## Eclectic Designs

A riot of different solutions in 19th Century.





Perforated concrete using nationalistic symbols - Budapest

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Inventive infill.



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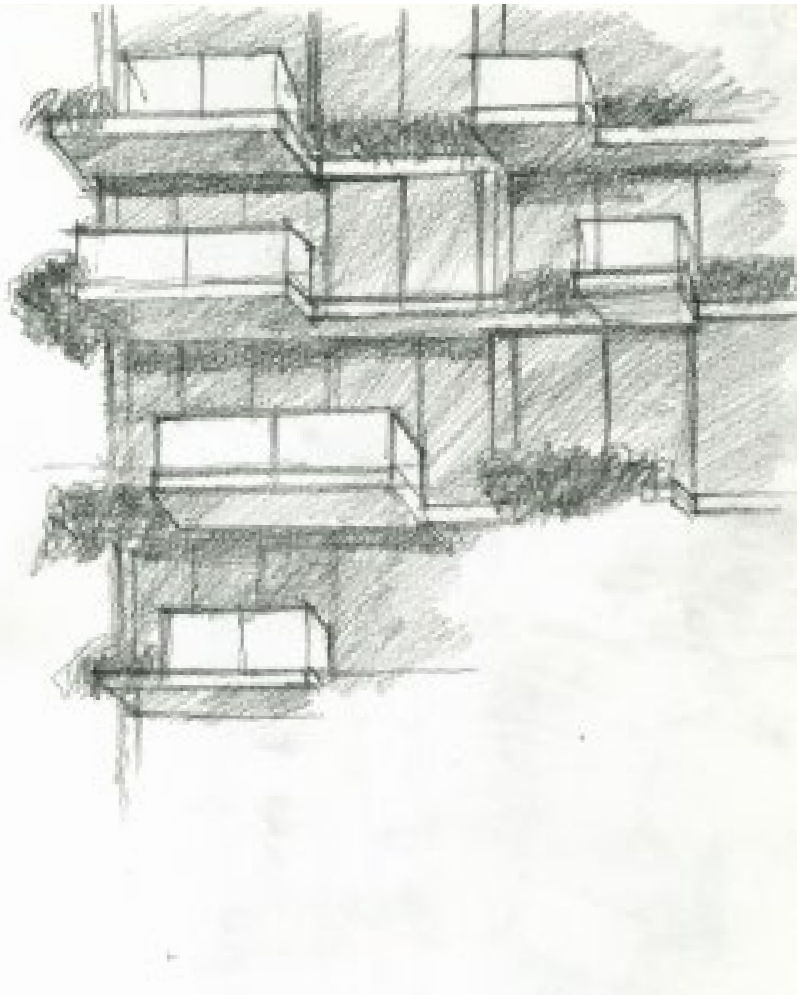


Perforated concrete incorporating symbols -  
Vietnam



Perforated screen design balustrade -  
Budapest





Imaginative use of safety glass balustrades - Central Park by Jean Nouvel.



Louis Vuitton, Frank Gehry Foundation - balustrade as simple as possible to avoid compromising complex focus.

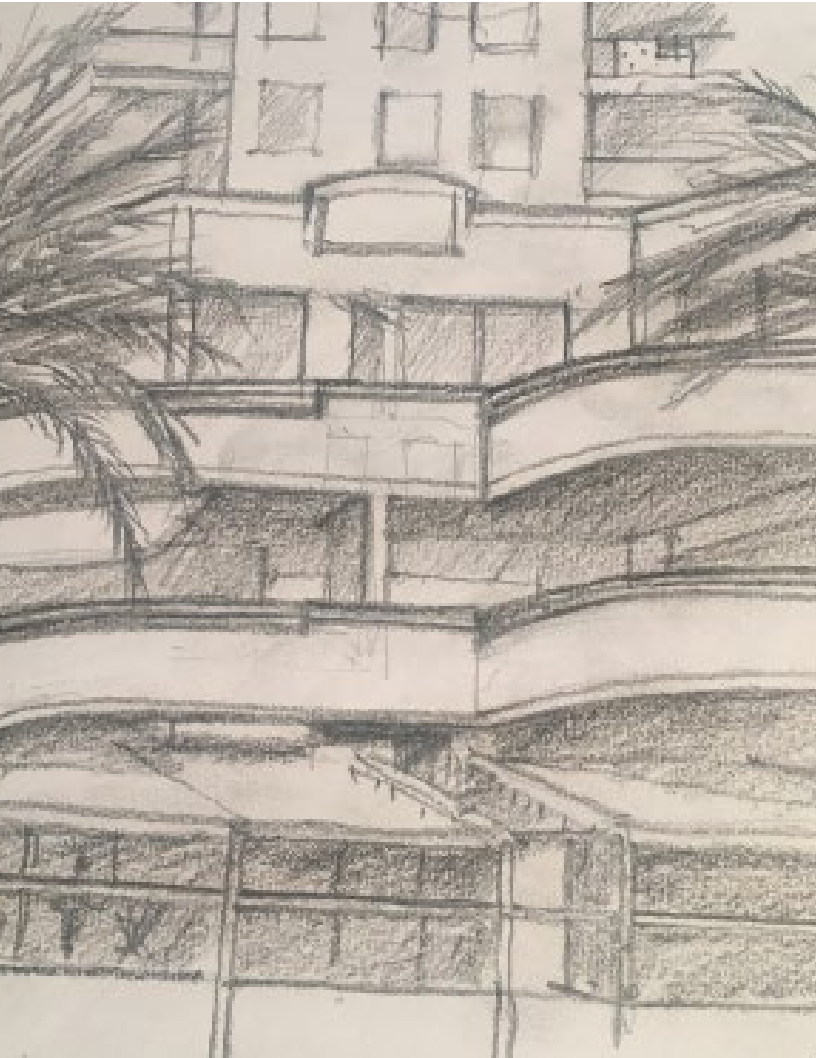


Early use of safety glass - Paris.



"Balustrade" building pattern.

*Balustrades used to emphasize form.*



Form reinforced by wall  
type Cronulla - Sydney.



Wall extend to form balustrade  
Edgecliff - Sydney.



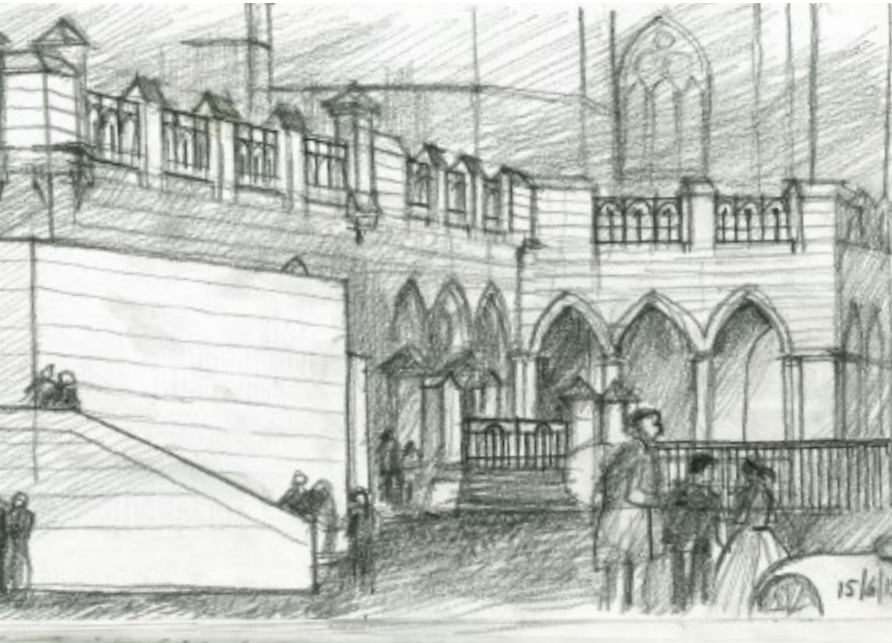
Complying balustrades to illogical concension.



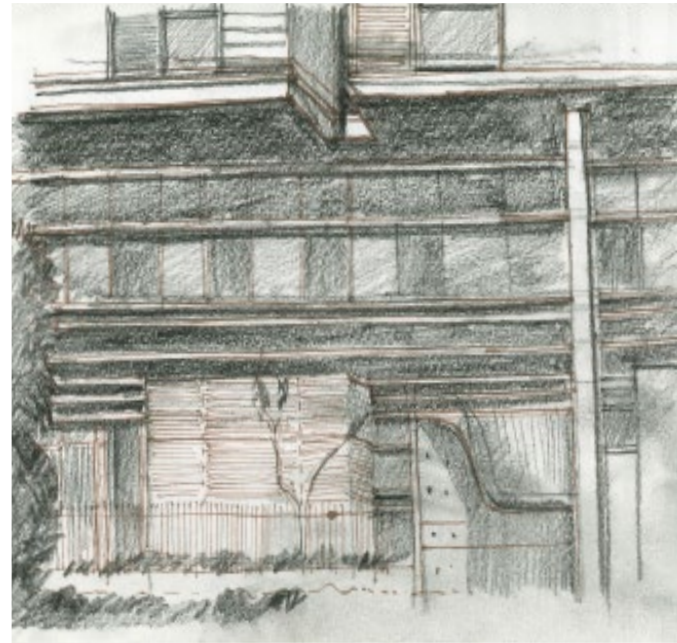
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Le Corbusier La Plata- infill of brise soleil.



Gothic revival using wrought iron - St. Mary's Cathedral, Sydney



Balustrade as part of building fabric wall - Central Park

*“Considering this incomplete review of balustrade design from Ancient Rome to the present, when building regulations, stricter than ever, almost all the historical balustrades in their many forms are non compliant with current international regulations”*

*JULIUS BOKOR*



## Image Source

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Crenulated Castle... 'Structure in Italy' , Architectural Design and History, Study.com.

Gothic Cathedral perforated screen, Cathédrale Notre-Dame de Rouen, France... 'Rouen' s Churches' Dispatch From Metz.

Tempietto of Bramante, Rome... 'Bramante, Donato 1502' , Web Gallery Online.

Wrought Iron balustrade... 'Parisian Apartment' , Sarah Kate Photo.

Used mostly photos and sketches by Julius Bokor.