

# Minimum Documentation Fiche

composed by regional working party of LOMBARDIA, Italy

## 0.1 Picture of building



Depicted item: "Torino Esposizioni Hall"  
source: Archivio Storico Fiat,  
date: 1951

## 1. Identity of building

### 1.1 current name of building

Torino Esposizioni Salone 2 e 3

### 1.2 variant or former name

Torino Esposizioni Salone B e C

### 1.3 number & name of street

Corso Massimo d'Azeglio 15

### 1.4 town

Torino

### 1.5 province/state

Piemonte

**1.6 zip code**

10126

**1.7 country**

Italy

**1.8 national grid reference**

Lat 45.048938°

Long 7.681039°

**1.9 classification/typology**

Exhibition center

**1.10 protection status & date**

Landscape protection: Bene ambientale vincolato oggetto di notifica ministeriale, ai sensi dell'art. 5 comma 17 delle NUA (Norme Urbanistiche Edilizie di Attuazione) del PRG.

**2. History of building****2.1 original brief/purpose**

The Società del Palazzo delle Esposizioni had commissioned the engineer Roberto Biscaretti di Ruffia to construct a new exhibition hall, to be used as a showcase for Turin's automobile industry, atop the remains of the Palazzo della Moda, designed in 1936 by Ettore Sottsass sr and bombed during the War. In 1947 Nervi & Bartoli were awarded the invited competitive tender, proposing two substantial variations to Biscaretti's project, based on a large hall with an apse: inclined lateral columns, in order to increase the height of the vault above grade and, for the terminal apse, a slender flattened semi-dome in alternative to the flat roof.

Designed and constructed immediately after the War, the Hall B at the Turin Exhibition represented the first concrete possibility for Nervi to apply the principle of structural prefabrication, uniting, in a single large-scale vaulted structure, his highly personal use of ferroconcrete (steel mesh and small diameter steel rods cast in a thin concrete pour) with the extensive use of prefabricated elements. It is also the first project that tied Nervi to the important industrial clients of Turin and Fiat.

**2.2 dates****First phase:**

Conception June-1947 Commission: 06/1947

design period: 06-08/1947 preliminary design: 08/1947

Official building permission: 09/1947

Duration of site work: 9 months

Completion: 05/1948

Inauguration: 09/1948

**Second phase:**

Design period: 1952-1953

Inauguration: 04/1953

**2.3 architectural and other designers**

Pier Luigi Nervi, Roberto Biscaretti di Ruffia

**2.4 others associated with building**

Nervi & Bartoli (contractor), Luigi Ravelli and Vittorio Bonadé Bottino (Fiat)

**2.5 significant alterations with dates**

Ordinary maintenance carried on over the past years by the former managing company for exhibitions left the halls in rather good conditions of preservation. Even if the original color (yellow

and grey) was changed to white, some new installations for air conditioning were installed on the balconies and the original lighting system following the ribs was removed. However, in the nineties in Hall B dark painting of the 2,700 roof windows to attenuate zenith lighting generated high temperatures and extensive cracking in the glass elements. Over the years widespread rainwater infiltration was experienced, leading to the need to restore bitumen waterproofing. The main item of restoration undertaken in 2006 for the Olympic Games was represented by the insertion of air conditioning, to meet temporary requirements of winter sports and, especially, to permit future permanent exhibitions, as indoor summer climate conditions proved to be unacceptable. The related piping was inserted outside the roof. Safety requirements for inspection and maintenance of the ceiling windows led to their subdivision in smaller elements with an undesirable loss of the original aesthetical appearance.

The hall was then temporarily converted into an extension of the Turin Modern Art Gallery, and subsequently housed, until 2011, the collection of the National Automobile Museum in Turin under restructuring. This last transformation, with the exhibition of ancient cars, had the merit to bring in some way the building back to its initial function. On the contrary, the architectural design of exhibit installations completely misinterpreted the original architectural concept: 5 meter high partitions deconstructed the internal space and closed the apse perspective towards the Po river. The local government department responsible for historical buildings did not oppose these interior partitions because they were supposedly light and removable; but in reality they became quasi-permanent, the cost of their dismantling being very high.

In what concerns adjacent Hall C, it is more preserved as the original state.

## **2.6 current use**

After the transfer in the late 1980s of the Automobile Show to another location, the Center was used for various exhibitions and events. Current ownership is fully in the hands of the City of Turin.

The hall closed as an exhibition space in June 2001. In 2006 it was designated to host hockey competitions for the Winter Olympics and then temporary exhibits of the Automobile Museum collections during the restoration of its main building. Hall C hosted the Turin venue of the Nervi international exhibition in 2011. Progressive abandon followed. Today is mostly abandoned.

## **2.7 current condition**

On the occasion of the 2006 restoration works, an extended program of structural assessment, inspection and non-destructive testing was performed on structural concrete. Structural analysis checks of the vault by F.E.M. demonstrated the correctness of the original structural conception and design. In what concerns durability, while limited usual defects of carbonation and corrosion were detected in the traditional parts of reinforced concrete in external zones of the structure, inspection of the vault showed very high quality of preservation of ferrocement roof elements, due to the high-quality concrete cover, which was confirmed by tests indicating practical absence of carbonation.

Lack of maintenance is starting to induce serious preservation problems. Search of a new function is underway by the Municipality of Turin owning the Center. Reuse programs, still partly under discussion, foresee the location of the City Library. It is hoped that the project will maintain the perception of large space being the main characteristic of the building.

# **3. Description**

## **3.1 general description**

Turin Exhibition Center consists of the main Hall B and the smaller adjacent Hall C, both designed and constructed by Nervi (1947-1948, and 1950). As in the large majority of his works, Nervi was both the designer and, through its construction company, the builder of the Exhibition Center. Shaped like a fascinating modern cathedral, Hall B (1947-1948) consists of an imposing wide nave covered by a cylindrical barrel vault, and an elegant apse with ribbed hemispherical dome. For the realization of the arches of the vault Nervi conceived wave-like prefabricated ferrocement elements joined by cast on site reinforced concrete ribs. Stylish fans connect the arches to the inclined

columns. The apsidal semi-dome was realized using lozenge-shaped ferrocement tiles connected by reinforced concrete cast in the lateral ribs and on their tops. Hall C (1950) is characterized by a captivating ribbed vault, constructed with the same system of ferrocement tiles and resting on four sculpturally shaped inclined arches.

### **3.2 construction**

The arched vault of Hall B, whose center line approaches the funicular of permanent loads, is formed by the union for each arch of 15 pre-fabricated thin ferrocement undulated elements of approximately 4.5 m weighing 1500 kg each. Their ends are stiffened by diaphragms leaving an empty space of 4 cm to be filled with cement mortar. The system is completed by reinforced cement ribs cast on site, arranged in the valleys and ridges of the waves. Each element was raised by means of an elevator and moved to its final position on rails disposed over the scaffolding. The slanted pillars supporting the vault and absorbing the thrust are connected to the undulated roof by means of three very elegant fanned arms. Prefabricated ferrocement tile elements, connected by reinforced concrete cast on site in the lateral ribs and on their tops, are used for the hemispherical dome of the apse.

Nervi adopted the same technique for the extremely elegant ribbed vault of Hall C (with lozenge shaped tiles) supported by sculpturally shaped slanted arch frames.

### **3.3 context**

The building is at the end of the Valentino Park along the river Po in a very interesting area, connected to the Royal 17<sup>th</sup> Century residence of the Castello del Valentino.

## **4. Evaluation**

### **4.1 technical**

The two main buildings of the Center (Halls B and C) are outstanding examples of a pioneering use, at the intersection between inspiration and technique, of new advanced methods in reinforced concrete construction, combining the extended adoption of innovative prefabrication procedures and the re-invention by Nervi of ferrocement, as an extremely malleable building material. A system that Nervi will then use in all its future buildings.

### **4.2 social**

High value. The Center was conceived in the years immediately following World War II as a public exhibition space to host primarily the annual Automobile Show, in connection with the presence in Turin of the internationally renowned FIAT motor company. It has represented a symbol of social meeting for the international car industry of all over the world.

### **4.3 cultural & aesthetic**

High value. The monumental complex of Turin Exhibition Center represents a milestone in the history of modern engineering and architecture. Reference to this celebrated Nervi's iconic masterpiece, as one of the most skillful examples of structural art, is very frequent in the literature on contemporary architecture.

### **4.4 historical**

High value. Inaugurated on 15 September 1948 and publicized as 'the most beautiful building ever built in Italy', the Hall B attracts the attention of the specialized international press as early as 1949, when it appears on the cover of *La technique des travaux*.

### **4.5 general assessment**

High value

## **5. Documentation**

## 5.1 principal references

NERVI P.L., La struttura portante del nuovo Salone del Palazzo di Torino Esposizioni. Rassegna tecnica della Società degli ingegneri e architetti in Torino, vol. 5-7, January-March 1950;.  
PEVSNER, N., 'A Master Builder', The New York Review of Books, March 3, 1966.  
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PACE S. (ED.), Pier Luigi Nervi. Architettura come sfida. Torino, la committenza industriale, Milano; Silvana Editoriale; 2011  
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NORMANDIN K., MACDONALD S., A Colloquium to Advance the Practice of Conserving Modern Heritage. Meeting report. The Getty Conservation Institute, March 6-7, 2013.  
ABEL J. F., ARUN G., CHIORINO M.A., Pier Luigi Nervi: art and technology in building. Journal of the International Association for Shell and Spatial Structures, vol. 54, 2013  
IASS WG 17, Documentation of Spatial Structures, <http://iasswg17.com>  
CHIORINO C., 'La sauvegarde des oeuvres de Pier Luigi Nervi: campagnes et projets en cours' in Graf F., Delemontey Y., Sauvegarde des grandes oeuvres de l'ingénierie du XXe siècle. Cahiers du TSAM, vol. 1, Lausanne ; Presses polytechniques et universitaires romandes; 2015

## Archives

Centro Studi e Archivio della Comunicazione (CSAC), Parma (IT)

<http://opac.unipr.it/>

Centro Archivi del MAXXI Architettura, Roma (IT)

<http://maxxisearch.fondazionemaxxi.it/maxxi/collezionixx/XX/fondo/IT-MAXXI-AR0001-0000002>

## 5.2 visual material attached

TE\_1: Drawings of the prefabricated system (from The Norton Lectures, Courtesy Pier Luigi Nervi Knowledge and Management project Asbl)  
TE\_2: Scaffolding for the construction with prefabricated elements (from The Norton Lectures, Courtesy Pier Luigi Nervi Knowledge and Management project Asbl)  
TE\_3: Interior of the Hall B in 1948 (Archivio Storico Fiat, Torino)  
TE\_4: Exterior of the complex of Torino Esposizioni in 1960 (Archivio Storico Fiat, Torino)  
TE\_5: The international car show in 1951 (Archivio Storico Fiat, Torino)  
TE\_6: The international car show in 1961 (Archivio Storico Fiat, Torino)  
TE\_7: Torino Esposizioni today (photo Cristiana Chiorino, June 2014)

## 5.3 rapporteur

Cristiana Chiorino, May 2015

## **6. Fiche report examination by ISC/R**

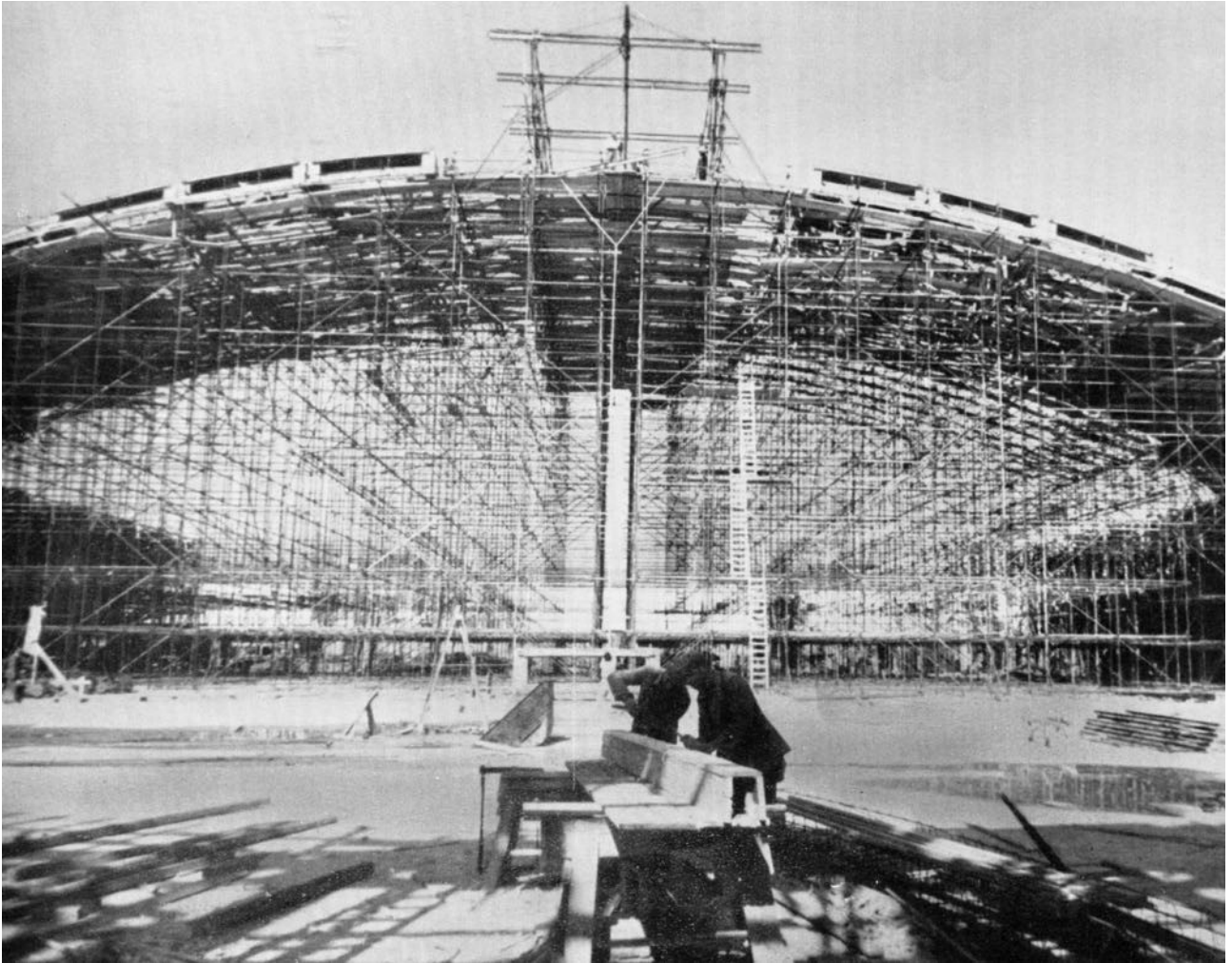
name of examining ISC member: date of examination:

approval:

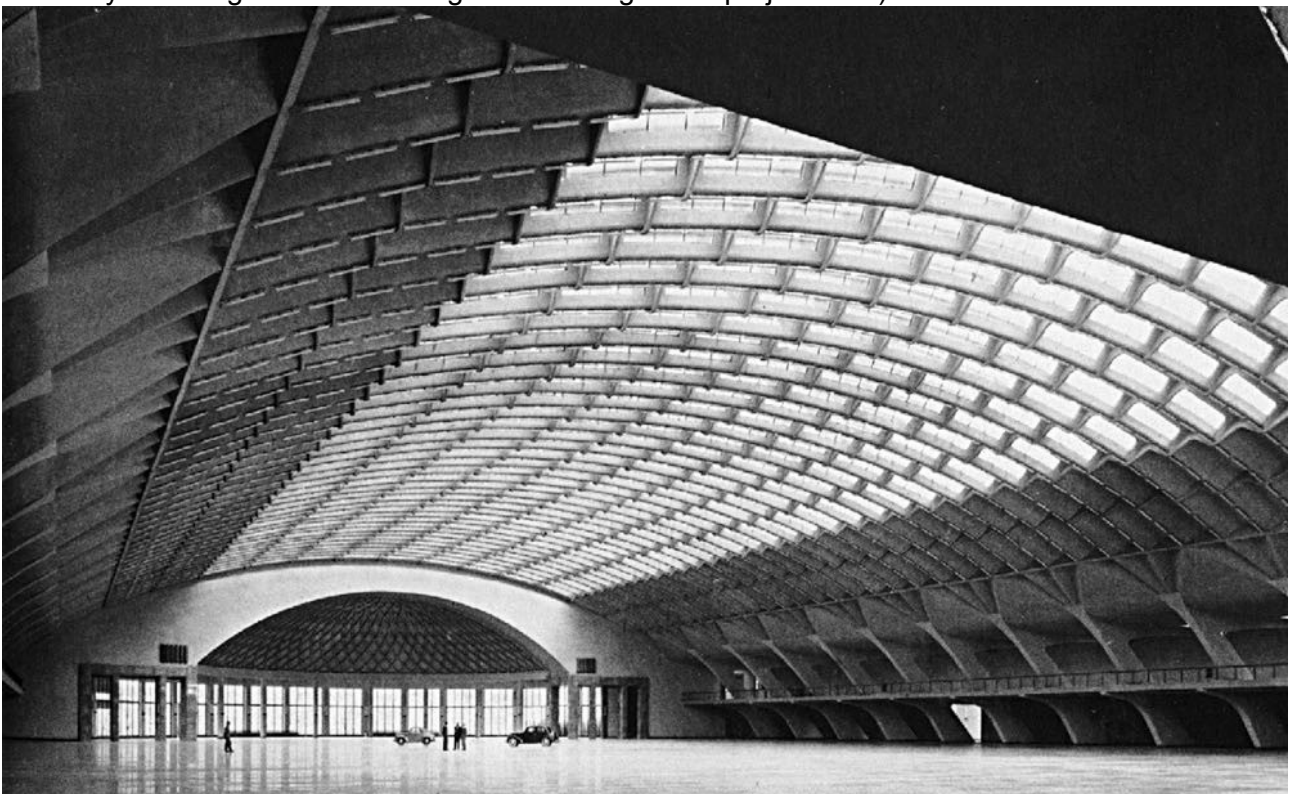
working party/ref. n°: NAI ref. n°:

comments:





TE\_2: Scaffolding for the construction with prefabricated elements (from The Norton Lectures, Courtesy Pier Luigi Nervi Knowledge and Management project Asbl)



TE\_3: Interior of the Hall B in 1948 (Archivio Storico Fiat, Torino)





TE\_4: Exterior of the complex of Torino Esposizioni in 1960 (Archivio Storico Fiat, Torino)



TE\_5: The international car show in 1951 (Archivio Storico Fiat, Torino)

# ILLUSTRATO FIAT

Anno IX - n. 10

PERIODICO MENSILE

Torino, 31 Ottobre 1961  
(16 Novembre)



**SALONE DI TORINO 1961**

(vedi a pag. 2-12-13)

TE\_6: The international car show in 1961 (Archivio Storico Fiat, Torino)





TE\_7: Torino Esposizioni today (photo Cristiana Chiorino, June 2014)