



Wholesale Greengrocers and Fishmongers Market, Bursa, Turkey

- A capital market
- A contemporary building
- Materials, structure and construction

Wholesale greengrocers and fishmongers market, Bursa, Turkey

This spectacular covered market set in a beautifully landscaped hilltop of the famous Silk Road is composed of two buildings. The central open air courtyard of the greengrocer market is enclosed by oval shaped covered gallery. The fishmonger market is a smaller building set apart. The design of both markets maintains the idea of the grand bazaars, thus connecting the new buildings to the long-standing cultural traditions of Central Asia. But at the same time the steel spanned arched roof provide fully modern qualities such as space, comfort, light and ventilation.

A Capital Market

Bursa was the first capital of the Ottoman Empire and is today the center of manufacturing in Turkey, leading the field in the automotive and textile industries. But the city is also a natural wonder: it sits at the base of the 2000 meter-

high Uludag mountain, which is the location of the country's first ski resort, and the city is also host to natural springs whose waters have long been thought to be therapeutic. Moreover, the fertile grounds around Bursa produce some of the country's best produce. The municipality of Bursa required a

new, modern facility for the wholesale trade of fruits and vegetables, as well as separate facility for fish and seafoods. The building would consolidate these commercial activities, providing the city with a centralized control point from which to monitor the Bursa's food supply.

The essential social function of a market is to fairly and transparently negotiate the quality and price of consumer goods through the complex interactions of many producers, brokers, and retailers together within a common space. By bringing these encounters together under one roof, the full extent of supply, demand, and quality can be accessed by all parties to the transaction at once, resulting in the most accurate evaluation of value.



Fig. 1. Aerial view of the site

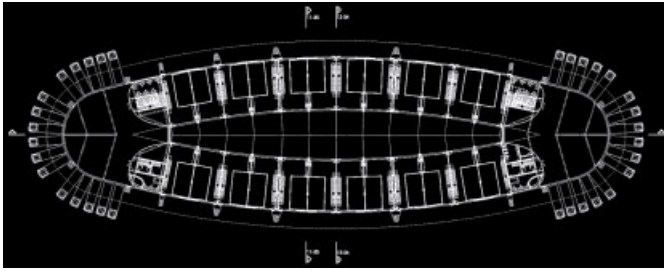


Fig. 2. Fishmongers' market ground floor

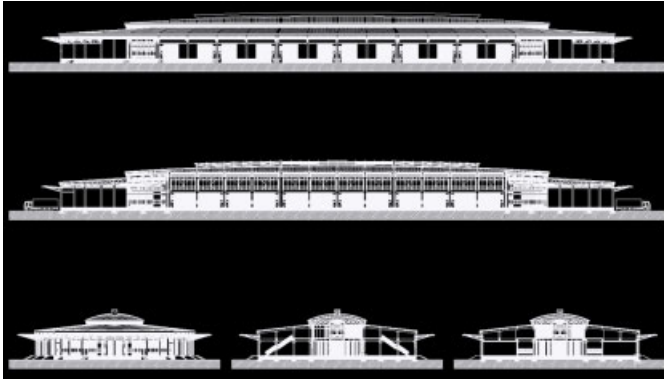


Fig. 3. Fishmongers' market sections

A Contemporary Building

The history of food markets goes back to "agora" and "stoa" of the ancient settlements. Along with the urbanization, the food needed for city-dwellers was brought to the city and presented in the marketplaces situated right at the most significant and populated urban spaces of the city. With their functional and architectural qualities, these marketplaces were the structures that gave an identity to urban architecture and urban life by the end of the last century. However today, through the opportunities of transportation, changing locations, getting renewed with spatial and functional solutions ended up with random, monotonous factory buildings all around the world, eventually, by all these factors, the marketplaces gradually lost their identical value.

While markets were once the great gathering places of a community, functions such as wholesale trade are more and more frequently relegated to architecturally insignificant, anonymous warehouse spaces: a worldwide trend with negative repercussions for both the cultural traditions of trade, as well as for the individual labor's experience of work.

Outfacing these misconceptions, the Bursa Wholesale Market, while moving to the developing section of Bursa, not only offers a fresh solution to the func-

tional dimension of the 'marketplace' but also made it into the colours of the city. Moreover, with its unique architectural structure, Bursa Wholesale Market provides emotional and perceptual satisfaction for the citizens.

The design of Bursa's wholesale greengrocer's and fishmonger's markets, on the other hand, maintain the idiom of the high, vaulted bazaar, connecting the new buildings symbolically and functionally with long-standing Central Asian architectural and cultural traditions. The complex patterns of vehicle, material, and pedestrian traffic are carefully coordinated within fluid, elliptical shapes, which in turn are bordered by brokers' offices. The rational form of the 350 meter-long greengrocer's market is designed to facilitate easy orientation, efficient exchange, and optimal routing of foodstuffs from suppliers to retailers and restaurateurs – all of which keeps down transaction costs. But it is also a good place to work: an animated space and architecture that is representative of the energy and productivity of the laborers, as well as of the city of Bursa.

It should come as no surprise that the forms of the two buildings resemble stadiums: a market only works when goods

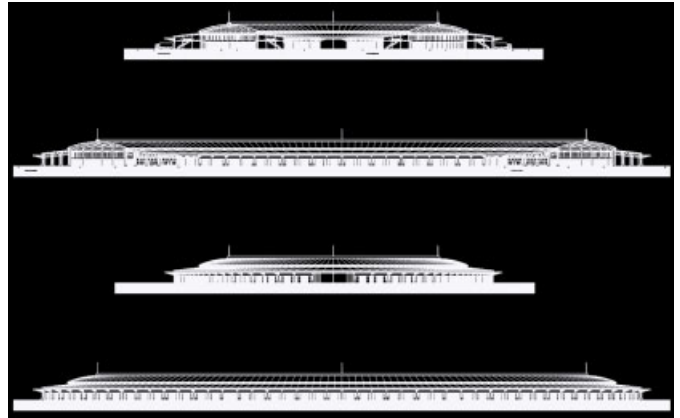


Fig. 4. Greengrocers' market sections

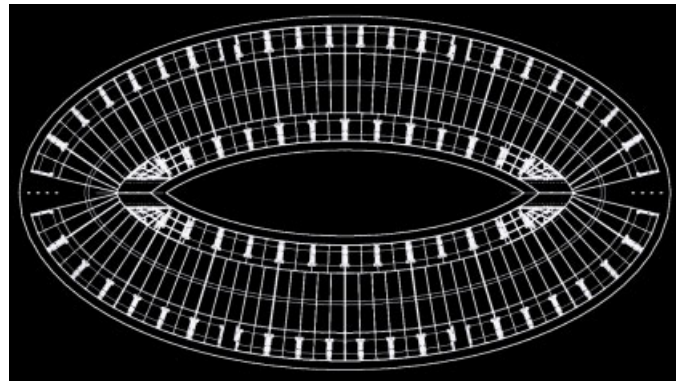


Fig. 5. Greengrocers' market ground floor

are on display and transactions can be observed. The panoptical form is as appropriate to the activities of a market as to a football match. At the same time, the configuration of the naturally-ventilated spaces allows the municipality to ensure the efficient, safe distribution of food products to its citizens. By consolidating the wholesale trade of produce and fish for the city of Bursa in a single location, the municipality is able to monitor the goods for quality and also to ensure that health regulations are followed.

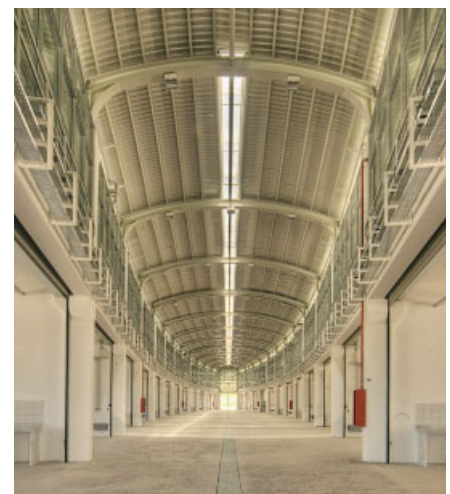


Fig. 6. Interior view of the fishmongers' market



Fig. 7. Preparation of the structural elements in the workshop



Fig. 8. Erection of the structure

Materials, Structure and Construction

By reinstalling steel into the architecture of the Wholesale Greengrocer's Market, a sense of emotional satisfaction was also achieved in the place, apart from all the functional conventionality. A high area topped with a steel spanned arched roof provides a healthy and orderly atmosphere for trade, as it is with grand bazaars of authentic Turkish architecture. Steel allowed reflecting Greengrocer's Market's unique character; and therefore, was the most suitable material.

The building for the produce market is approximately 42000 square meters, while that of the fish market is 2500 square meters. In addition, there is a tower of 2400 square meters that houses administrative offices, a restaurant, and a hotel. Outbuildings include a post for

the gendarme as well as weigh stations and motor vehicle access control points.

The building structure realized with steel structure and prefabricated reinforced concrete. The roads and the floors are made of reinforced concrete and the surfaces are realized as walls made of glass and brick. The roof is covered with trapeze, galvanized and dyed sheet metal. Woodworks and doors were made of steel and the animated doors, aluminium material.

The building sits on a site of 400000 square meters a few kilometers from the city center. As with the building interiors, clear orientation and efficient movement of vehicles and material inform the site planning and landscape design. The facility will operate around the clock with more than 5000 suppliers,

brokers, and retailers passing through on a daily basis.

Without losing the significance and respect shown in building a city, urban life can exist by gracing the architectural dimension of the city. This building reinforces the existing historical background of the city of Bursa, with adding a new dimension to its functional requirements.

Architects:

Tuncer Cakmakli Architects

Engineers:

IZ Muhendislik (static structural consultant: Dr. Selcuk Iz - Engin Arkayin)

Steelwork contractors:

Cem Demir

Keywords: arched roof, curved façade, market hall



Fig. 9. The structure of the greengrocers' market in construction

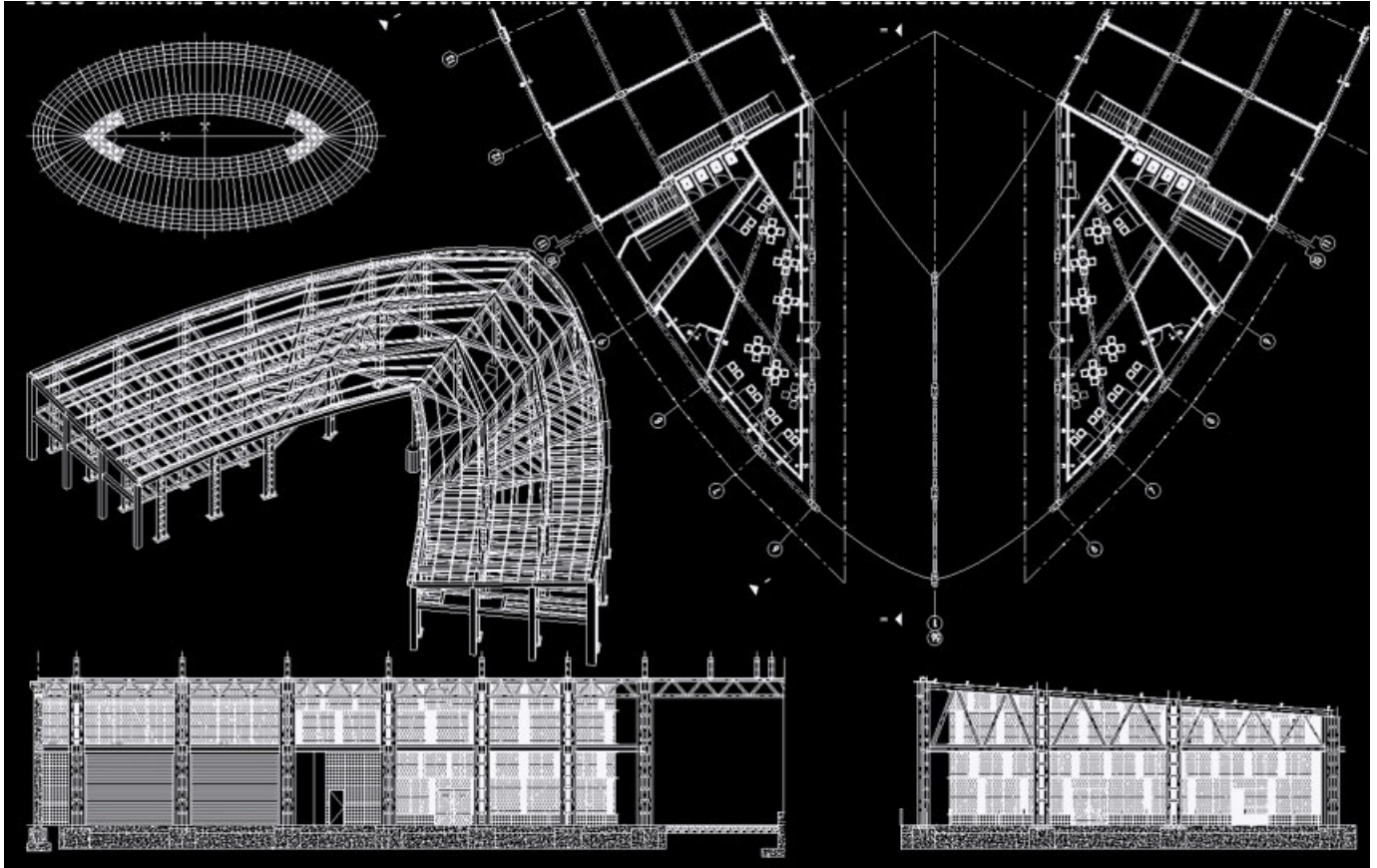


Fig. 10. The greengrocers' market public area



Fig. 11. Interior view of the greengrocers' market



Fig. 12. General view of the fishmongers' market



Fig. 13. On the roof of the greengrocers' market



Fig. 14. Retail entrance



Fig. 15. The administration building



Fig. 16. Inside the greengrocers' market in operation

Architecture Steel Stahl Acier is intended to provide architects with a series of case studies of notable buildings built with steel.

Editing and layout: Cedam

Text and photographs: Tuncer Cakmakli Architects

Editor:

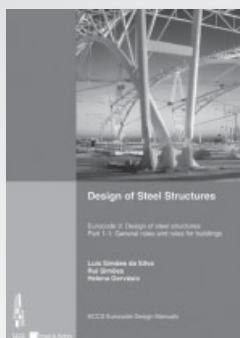
ECCS European Convention for Construction Steelwork

Avenue des Ombrages 32/20

B-1200 Brussels

Tel: +32 2 762 0429 / Fax: +32 2 762 0935

www.steelconstruct.com



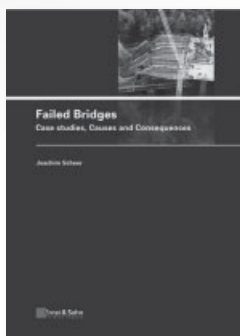
ECCS – European Convention for
Constructional Steelwork / Associacao
Portuguesa de Construcao Metalica e
Mista (eds.)

Design of Steel Structures

Eurocode 3: Design of steel structures.
Part 1-1: General rules and rules for
buildings.

April 2010
XVI, 446 pages, 295 figures, 105 tables,
Softcover.
€ 70,-*
ISBN 978-3-433-02973-2

■ This book introduces the basis design concept of Eurocode 3 for current steel structures, and their practical application. Numerous worked examples will facilitate the acceptance of the code and provide for a smooth transition from earlier national codes to the Eurocode.



JOACHIM SCHEER

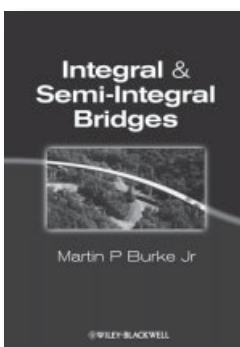
Failed Bridges

Case Studies, Causes and Consequences.
Foreword by Christian Menn

May 2010
XIV, 307 pages, 120 figures, 15 tables,
Hardcover.
€ 79,-*
ISBN 978-3-433-02951-0

■ A systematic overview of more than 400 failures evaluated according to the time of their occurrence in the life cycle of the bridge and the primary cause of the

collapse. Including a catalogue of rules to help prevent errors in design, planning and erection.



MARTIN P. BURKE JR.

Integral and Semi-Integral Bridges

July 2009. ca. 272 pages, Hardcover.
€ 89,90*
ISBN 978-1-4051-9418-1

■ Worldwide, integral type bridges are being used in greater numbers in lieu of jointed bridges because of their structural simplicity, economy, and durability. Written by a practicing bridge design engineer from the USA who has spent his career involved in the origination, evaluation and design of such bridges,

this book shows how the analytical complexity due to the elimination of movable joints can be minimized to negligible levels so that most moderate length bridges can be easily and quickly modified or replaced with either integral or semi-integral bridges.



Steel Construction

Design and Research

Volume 3, 2010, 4 issues per year.
Editor in chief: Dr.-Ing. Karl-Eugen Kurrer
Annual subscription print
ISSN 1867-0520
for companies € 148,-
for libraries € 500,-

Annual subscription print + online
ISSN 1867-0539
for companies € 162,80
for libraries € 550,-

Subscription prices are net-prices exclusive of VAT but inclusive postage and handling charges.



ECCS – European Convention for
Constructional Steelwork / Associacao
Portuguesa de Construcao Metalica e
Mista (eds.)

Fire Design of Steel Structures

EC1: Actions on structures.
Part 1-2: Actions exposed to fire.
EC3: Design of steel structures.
Part 1-2: Structural fire design.

May 2010
XXIV, 428 pages, 134 figures, 21 tables,
Softcover.
€ 70,-*
ISBN 978-3-433-02974-9

■ This publication sets out the design process in a logical manner giving practical and helpful advice and easy to follow worked examples that will allow designers to exploit the benefits of the new approach given in the Eurocodes to fire design.



STEFAN NIXDORF

StadiumATLAS

Technical Recommendations for
Grandstands in Modern Stadia

February 2008
368 pages, 695 figures,
Hardcover.
€ 79,-*
ISBN 978-3-433-01851-4

■ This StadiumATLAS is a building-type planning guide for the construction of spectator stands in modern sports and event complexes. The principles of building regulations and the guidelines of important sports associations are analyzed and interrelated.



TONY BRYAN

Construction Technology

Analysis and Choice

2. Edition – March 2010
464 pages, Softcover.
€ 89,90*
ISBN 978-1-4051-5874-9

■ The second edition of Construction Technology: analysis & choice is to be expanded to include commercial buildings, giving a single textbook covering all the basic forms of construction studies on professional courses.

■ Steel Construction unites in one journal the holistic approach to steel construction. In the interests of "construction without depletion", it skilfully combines steel with other forms of construction employing concrete, glass, cables and membranes to form integrated steelwork systems.

The scientific and technical papers in Steel Construction are primary publications. This journal is aimed at all structural engineers, whether active in research or practice.

The ECCS – European Convention for Constructional Steelwork and Ernst & Sohn have agreed that the journal Steel Construction founded by Ernst & Sohn in 2008 is to be the official journal for ECCS members from 2010 onwards. You will find more information about membership on the ECCS homepage, www.steelconstruct.com.