

Bottling plant at the Carlsberg Breweries, Copenhagen (Denmark)

Autor(en): **Frandsen, A.G.**

Objekttyp: **Article**

Zeitschrift: **IABSE structures = Constructions AIPC = IVBH Bauwerke**

Band (Jahr): **7 (1983)**

Heft C-27: **Recent structures: Part I**

PDF erstellt am: **10.05.2024**

Persistenter Link: <https://doi.org/10.5169/seals-18281>

Nutzungsbedingungen

Die ETH-Bibliothek ist Anbieterin der digitalisierten Zeitschriften. Sie besitzt keine Urheberrechte an den Inhalten der Zeitschriften. Die Rechte liegen in der Regel bei den Herausgebern.

Die auf der Plattform e-periodica veröffentlichten Dokumente stehen für nicht-kommerzielle Zwecke in Lehre und Forschung sowie für die private Nutzung frei zur Verfügung. Einzelne Dateien oder Ausdrucke aus diesem Angebot können zusammen mit diesen Nutzungsbedingungen und den korrekten Herkunftsbezeichnungen weitergegeben werden.

Das Veröffentlichen von Bildern in Print- und Online-Publikationen ist nur mit vorheriger Genehmigung der Rechteinhaber erlaubt. Die systematische Speicherung von Teilen des elektronischen Angebots auf anderen Servern bedarf ebenfalls des schriftlichen Einverständnisses der Rechteinhaber.

Haftungsausschluss

Alle Angaben erfolgen ohne Gewähr für Vollständigkeit oder Richtigkeit. Es wird keine Haftung übernommen für Schäden durch die Verwendung von Informationen aus diesem Online-Angebot oder durch das Fehlen von Informationen. Dies gilt auch für Inhalte Dritter, die über dieses Angebot zugänglich sind.

Ein Dienst der *ETH-Bibliothek*

ETH Zürich, Rämistrasse 101, 8092 Zürich, Schweiz, www.library.ethz.ch



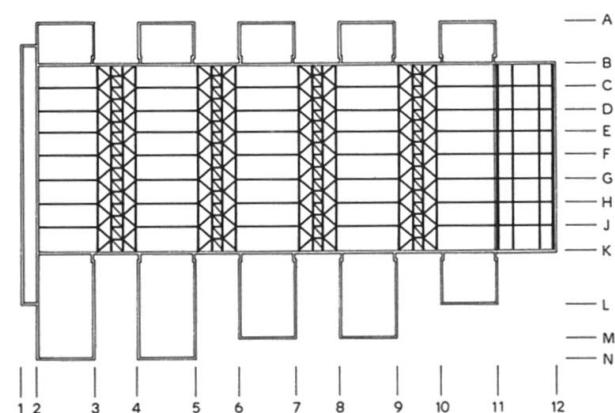
7. Bottling Plant at the Carlsberg Breweries, Copenhagen (Denmark)

Client: United Breweries
Main Consultant: Danbrew
Architect: S. Højby Rasmussen
Structural Engineers: Cowiconsult
Structural Steel Contractors: HEAS AS
 Christiani & Nielsen AS
Construction time: 12 months
Service date: 1984

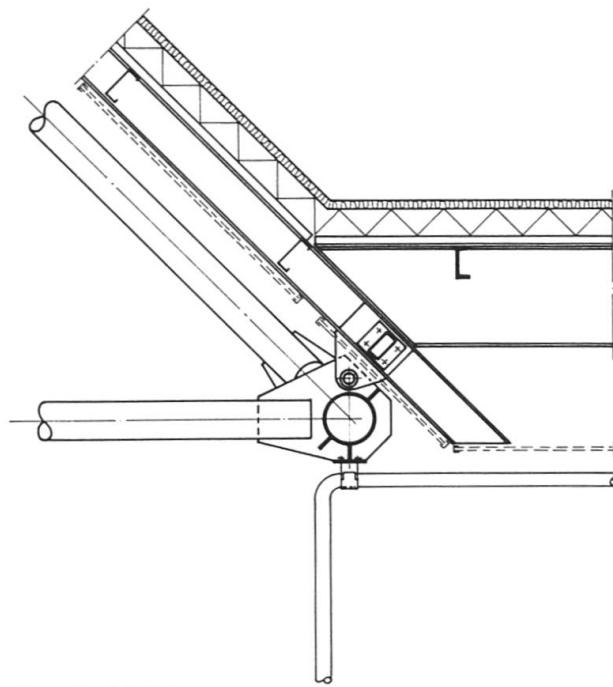
Introduction

As part of a major modernisation programme for the Carlsberg Breweries, a new bottling plant has been designed and is now under construction. The plant will have a capacity of 78,000 Pilsner per hour and is based on the most advanced technology. Great emphasis has been placed on creating the best environmental conditions possible for the employees and for the residents neighbouring the site.

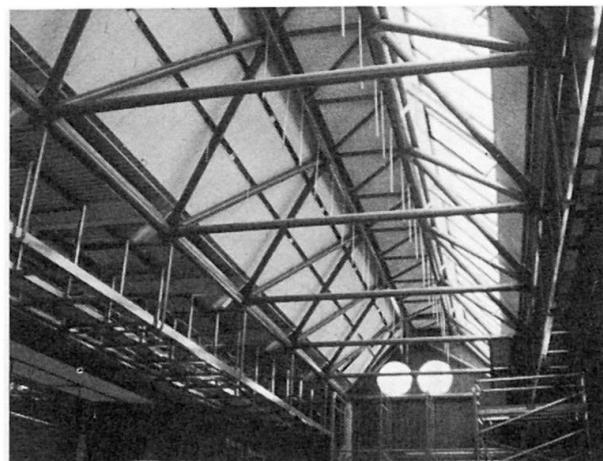
The building layout comprises a main building body with ten smaller buildings projecting from the facades. The bottling plant is located in the main building and is designed with the production area free from columns and obstructions from mechanical and electrical services. The supplies are provided from pipebridges suspended from the roof structure. Furthermore the main building contains a section for the continuous unloading and loading of trucks. The smaller buildings house service functions such as locker rooms, offices, stores and workshops. Gardens are situated between the buildings. Ventilation plants and mechanical equipment are located in the basement.



Building layout



Detail of joint



Interior view

Technical Data

Total floor area :	10,000 m ²
Free span in bottling hall:	44 m
Substructure:	Reinforced concrete
Roof structure:	Main building – structural steel
	Service buildings – prestressed reinforced concrete elements
Facades:	Double leaf masonry walls
Structural steel weight (for roofs, facades, and pipebridges) :	500 t

Steel Structure

The roof of the bottling hall forms a shed roof with four steel trusses comprising the main structure, each of which are supported by four reinforced concrete columns.

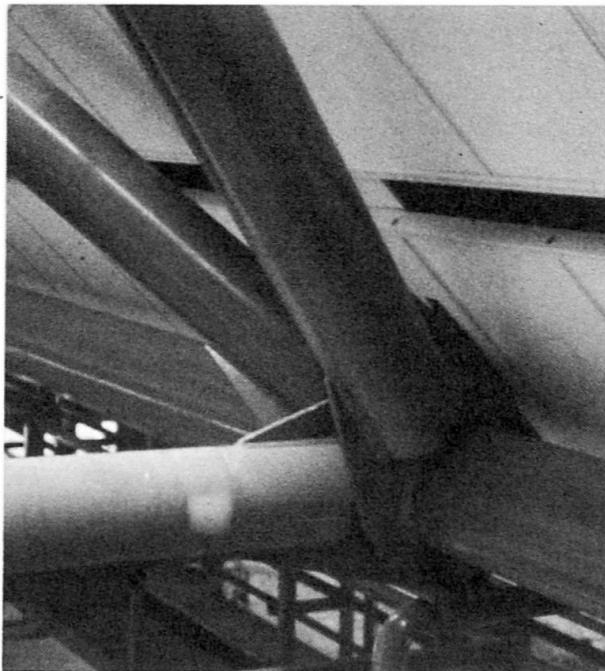
The trusses have a trapezoidal cross section with a maximum width at the bottom of 8.6 m and a height of 3.5 m. Bracing members are arranged only in the top level and the sloping sides of the trusses. As there is no bracing in the bottom level of the trusses, unsymmetrical loads are catered for by providing bracings between neighbouring trusses which restrains the bottom chords.

All members in the trusses are circular hollow sections of steel grade St. 52.3. The joints are designed with gusset plates that form a saddle over the top and bottom chords. This design has been chosen primarily for esthetical reasons but the contractor has found the solution to be also economically favourable.

The secondary roof structures consist of standard sections that allow for arbitrary suspension of services etc. These structures are supported by the trusses at the bottom joints only and are arranged in such a way that only the main trusses are visible from below the suspended ceiling.

Erection of the Roof Structures

In order to achieve the specified quality a careful quality control system has been carried out by the consultants' supervision. Due to transportation the



Bottom joint

main trusses were manufactured in sections at the workshops and assembled on the site under the cover of two large tents. Only shop priming was applied before arrival at the site. The trusses were completed inclusive of the final paint at ground level i.e. before erection.

(A. G. Frandsen)



Building under construction