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## Opening Address

Discours d'ouverture

Eröffnungsansprache

### **Olavi SYRJÄNEN**

Director

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## **The Challenges of Structural Engineering**

The period immediately following the Second World War was a time of tremendous construction in Finland. The first stage in this was the resettlement of the people of Karelia (which was ceded to the Soviet Union) and building new dwellings for them. The second stage was caused by the restructuring of society, and the industrialization associated with this, which resulted in the migration of large numbers of people from rural areas to the population centres of the country, especially to the Helsinki Metropolitan Area. Housing construction, for its part, illustrates this time of tremendous building activity. As a result, the Finnish housing look is very young. At present it comprises about two million dwellings, 60 % of which were built after 1930. Since the end of the war, the annual production of housing in Finland has been on average 9.7 dwellings per 1000 inhabitants. A record year was 1974 when 15.6 dwellings per 1000 inhabitants were produced. At the moment our annual production is just over 40.000 dwellings, or 8.6 per 1000 inhabitants, which is one of the highest in Western Europe. Perhaps I should point out here that in area Finland is the third largest country in Europe and that population density is about 16 persons per square kilometer.

Without advanced structural engineering, Finland would not have been able to achieve the volume of construction which I have just described to you. This Congress also shows that the development of structural engineering is the result of strong international co-operation. Different countries have developed different types of construction systems which in turn have been adapted by other countries to suit their own circumstances. This happened also in Finland in the 1980s when we began the strong development of industrial construction. The representatives of many Finnish construction firms, as well as officials and planners, were regular visitors to European industrial building sites and industrial plants. Thus at the beginning of the 1970s Finland developed further an industrial construction system suitable for housing construction which was based on the BES system of load-bearing partitions and hollow slabs. Without this system the record breaking figures in housing production would not have been possible. But techniques must develop and indeed this has happened. New forms of construction, improved quality and the growing needs of the people have brought about development. I firmly believe that this Congress will provide us with some new ideas for developing our construction systems and techniques.

Good planning, high-quality building materials and skilful implementation are a part of Finnish construction. Finland has tried to be a country which looks to the future and one which is continuously developing its construction methods. In the planning and implementation of housing areas, Finland has a long tradition of organizing special housing exhibitions. This summer the 20th National Housing Exhibition will be organised in the city of Turku where a new and genuine housing area has been built. The people who have purchased the houses will move in at the close of the exhibition. These exhibitions are a joint venture of the city where the exhibition takes place, the Finnish Association of Housing Exhibitions, private developers and construction companies. As a result of these exhibitions there has been continuous discussion about housing development and future needs. Experts in this field, the press and the people of Finland have participated in these discussions.

In the coming decades one of the most significant challenges in the field of construction in Finland will be the modernization of the housing stock built between 1950–1970. We hope to accomplish this without resorting to such measures as the blowing up of apartment buildings, as has happened in the United States and Western Europe. It is the task of structural engineering to find moderately priced and clear-out solutions, which can be used to revitalize the facades of apartment buildings, build new balconies, extra rooms and the other demands of a quality environment. I believe that in this way, together with new construction, we can make the community structure more coherent and thus achieve the desired results both in quantity and quality.

As I have said earlier, structural engineering is rather international. The same goes for building. This is especially seen in the amount of export construction and its continuous expansion. Finland, for its part has, since the middle of the 1970s, been able to increase export construction as the volume of housing construction in the domestic



market has decreased. Especially in export construction both the exporter and the recipient country can, and perhaps are even forced to, develop together their own structural engineering systems. The opening of international markets and the sure, but so far regrettably slow, international harmonisation of building norms in each country will, through building exports, decisively increase the interaction between different countries. 1992 will present a special challenge to harmonization. Before then Finland also has reason to ensure that the greater part of its building norms correspond to general European norms.

I am certain that this IABSE Congress will positively influence building development in the participating countries and the participants will leave with knowledge that will be of considerable help in the construction of their own countries. Naturally I hope that you, our foreign guests, for your part, will also leave behind know-how which we can use and which we can further develop in the construction of our country. Perhaps most important of all, however, is that the participants have an opportunity to form friendships on an individual level.

With these words I now declare this Congress open, and on behalf of the Government of Finland wish it every success in its work.