

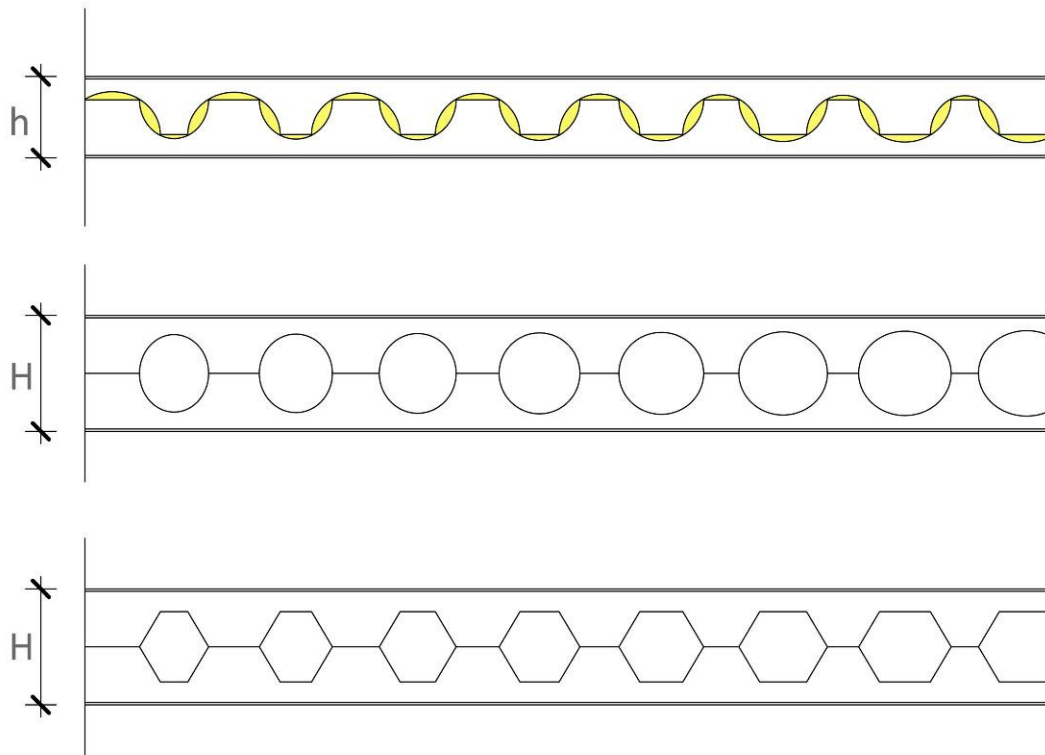
design of aeroplane hangar

Optimal development and application of Lightened / Web-perforated beams

Significant material and financial savings could be achieved by utilisation the intellectual product named above. The application is offering a full consultancy design service with the invention (which obtained European Patent before) and associated design software together with the author/inventor's knowledge and experience in architectural, structural design.

On major projects the author can consult with the clients, architects and structural engineers, and if required with the manufacturer as an advisory engineer consultant. Above all he would present his proposals widely looked after their endeavours.

The evolution of the lightened / web-perforated beams begun with the hollowed beams followed by the *Litzka honey-beams (Wabenträger)* and the honeycombed *Cellbeams* produced by the British company called *Westok*. The author developed the *Variable Web-perforated Optimal Beams* as per the invention supported by the design software. The beams can be fabricated using CAD/CAM supported flame- or plasma-cutting.



design of bow/honey- beam section

Creating little or no waste the size of the openings and struts in the special *Variable Web-perforated Optimal Beams* vary, according to the given dynamic load and manufacturing requirements. Dimensional variability is made possible by the use of rotationally symmetric rectangular and/or curved cutting lines. The option of erecting circular traced beams is particularly beneficial in the case of dynamically loaded and/or aesthetically higher standard structures and fitting well to *High-Tech* trends.

In accordance with the new method the production of the *angular traced beams* are clear of waste; the production of the *circular traced beams* have little waste only:

beam type	amount of waste	length of cutting	length of welding
angular traced beams	0	1330 mm / m	330 mm / m
circular traced beams	1/6th area of hollows	2430 mm / m	330 mm / m

Depending on the sections employed and structural conditions, the span of the beams can accommodate 90 meters, and even 45-meter overhung supports such as stadium bleachers (for example: linear axis, bended axis beams, cantilevered beams, constant or varied height beams).

By employing such techniques a weight reduction of 15-35 % and a reduction of 10-20 % of the surfaces to be treated can be achieved. By default material, transportation, lifting, assembly, galvanization, surface treatment, and fireproofing costs are reduced. Compared to standard techniques this can typically allow construction cost savings of at least 10 %. Altogether a more valuable and spectacular project can emerge.

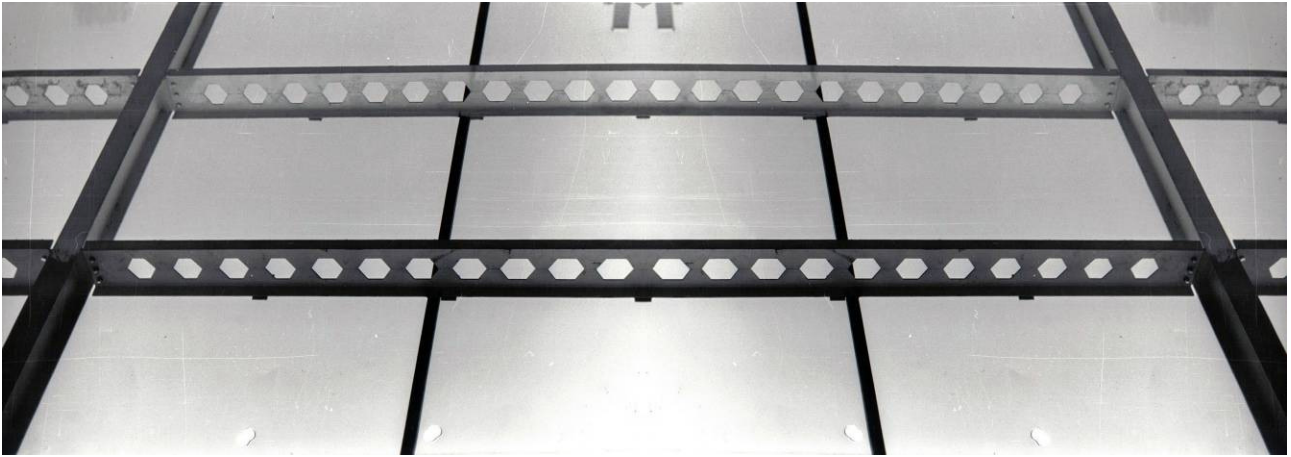
The steel (or aluminium) beams can be widely used in combination with reinforced concrete structures in the construction, machinery, and ship-building industries.



Budapest, Ferihegy 1 Airport lounge structure visualisation

Optimal design variations can also be achieved in accordance with the approximate load bearing capacity calculations by EUROCODE (and also by MSZ – Hungarian Standards). At the same time it is possible to develop different options with different sections and/or cutting. The chosen version (“the optimum of the optimum”) could be verified by standard engineering software. The fabrication is carried out by computer aided cutting.

The author and his partners welcome any enquiries from erectors, developers, architects, engineers, fabricators and contractors. Issues for the application are detailed in the *Appendix*.



roof structure, secondary school

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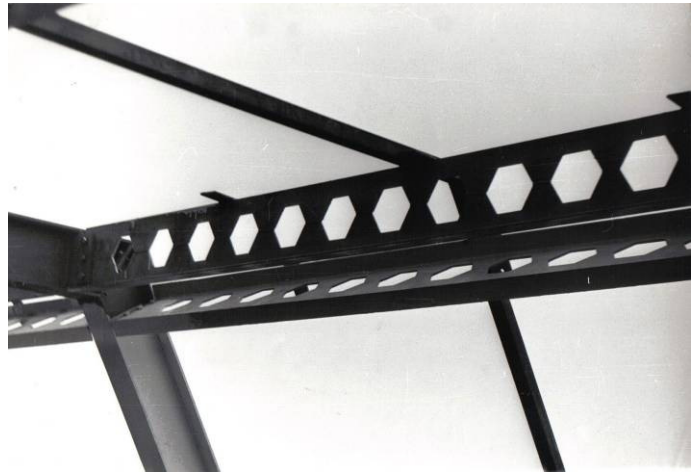
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Appendix



roof structure detail, secondary school

Procession of the application of the Lightened / Web-perforated Beam product:

The design of the beams is being carried out by the software developed by the authors.

At potential projects the author can contribute as an advisory engineer consultant.

Utilisation:

1. Contact making;
To get to know the architectural/structural design intent; and if present the previous design options, load bearing capacity.
2. Feasibility Study;
Initial analysis of the emerging design solutions.
3. Signing the Contract
Define conditions for a stakes-based relation.
4. Outline Design Proposals:
Prepare a study report of initial analysis.
5. Detail Design;
Submit developed beam proposal.
6. Production Information;
Submit final cutting template drawings for fabrication.