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# Design Power Success

## *Hollandsche Beton- en Waterbouw nv.*



HBW automated the design and sequencing of construction excavations by capturing its in-house work process expertise with Design Power's Design++ technology.

### Re-engineering the excavation design process

Hollandsche Beton- en Waterbouw nv. (HBW), a large Dutch contractor, has dramatically slashed the time it takes to design complex construction excavations in difficult water saturated soils. Using Design Power's Design++ technology, HBW captured its building excavation expertise into an automated engineering design system, Bouwput++. Tasks that used to take HBW days now take only a few hours. More significantly, the system has also produced substantial savings in numerous projects by optimizing both excavation design and sequencing.

HBW reports the following Bouwput++ advantages:

- Order-of-magnitude productivity improvements.
- Increased contract awards.
- Significant construction cost reductions.
- Consistent high quality designs.
- Improved safety



When Professor Charles Vos of HBW first saw DPI's technology he immediately recognized its applicability to excavation design.

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## Safety is the driver

Hollandsche Beton- en Waterbouw (HBW) is a recognized world-wide expert in construction in water-saturated soil. HBW analyzed soaring insurance claims and costs and identified excavation problems as a key source. Clearly HBW's best expertise in engineering and design of building excavations had to be used on every job. A system that captured their experts design knowledge and made it available to all designers was needed.

In searching for such a system, Professor Charles Vos, chief engineer of HBW, learned about the Design++ technology and methodology developed by the Design Power Group. He immediately saw its applicability to excavation design. His vision initiated the development of Bouwput++, HBW's excavation design system.

## Bouwput++

The Design++-based Bouwput++ system uses HBW's captured expert knowledge to design safe and cost-effective building pits and to optimize their excavation sequences. For its design the system maintains a catalogue of standard components including sheet piles and anchors.



*Marianne Knibbe uses Bouwput++ in her daily work.*

Bouwput++ integrates with existing HBW software to optimize the excavation support and ensure its structural integrity. It uses an Oracle database for catalogue information and it integrates with AutoCAD to automatically create engineering models and drawings. The system produces complete technical specifications required for project permits and construction using a standard word processing package.

The knowledge-base capturing HBW's best design practices was taken from a comprehensive 300-page report prepared in eight meetings with six experts. This expertise is now permanently stored in a re-usable form in the Bouwput++ system.

## Immediate detail design

Bouwput++ is in daily use for both proposals and final design. The speed of the system lets HBW base their proposals on *fully detailed designs* and still achieve a shorter proposal turn-around and lower cost solutions than the competition.

Bouwput++ is easy to use. The user inputs key data such as soil characteristics, key design criteria, work phases and pit geometry after which the system generates a solution. The rapid response allows review of many alternatives.

Marianne Knibbe, a civil engineer and new hire to HBW, found Bouwput++ "very easy to learn". She said, "we had one morning to learn the tool. In the afternoon we used it." Her first design dealt with a small road tunnel under an existing railroad. "You don't need to know anything about AutoCAD or the other underlying systems," she says illustrating Bouwput++'s seamless integration through its common user interface.

## Management endorsements

Professor Charles Vos is clear about the advantages of Bouwput++:

"HBW has used Bouwput++ in Holland now for an extended time on a large number of projects. With several jobs we could optimize the pits in such a way that it was the main reason we were awarded the contract."

"Creating an optimized design for a four wall building pit used to take a week, Using Bouput++ such an optimized design now takes less than a day!"



*HBW specializes in construction in water-saturated soil.*

## The Design Power Advantage

For manufacturers that intend to compete successfully Design++ solutions accelerate sales of complex products with instant turn-around of design-based proposals complete with 2D drawings, 3D models and technical specifications.

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