

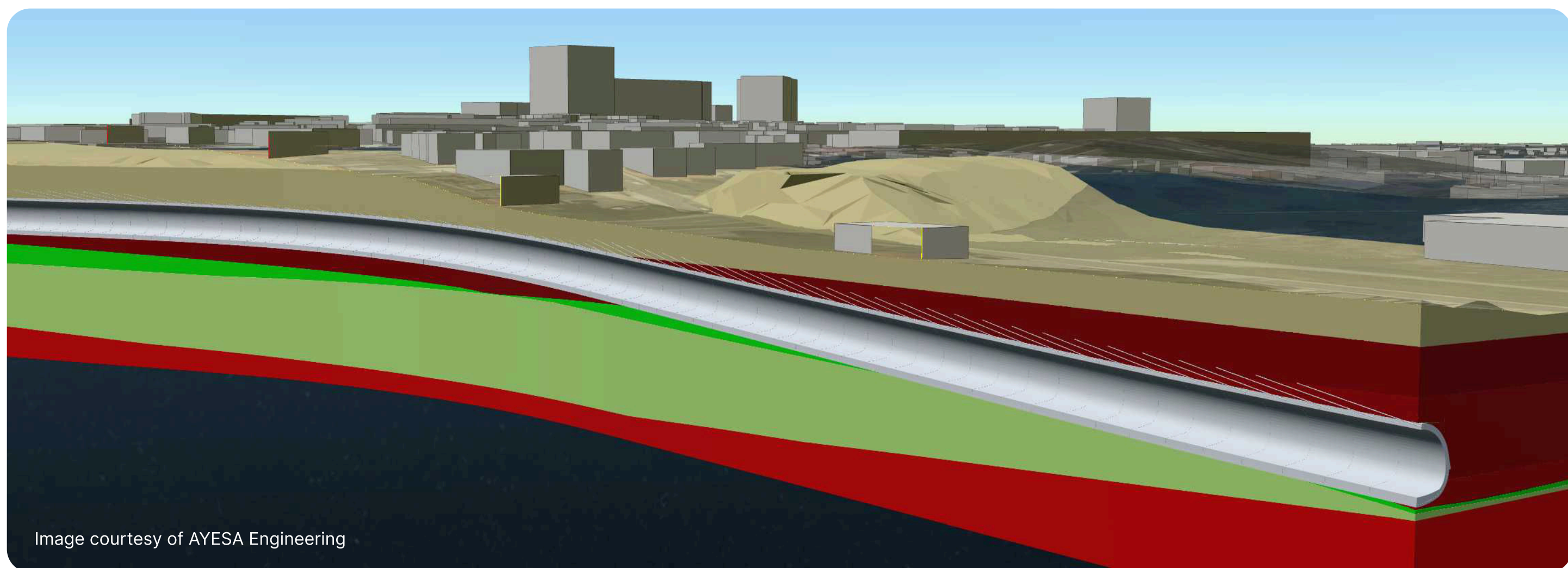
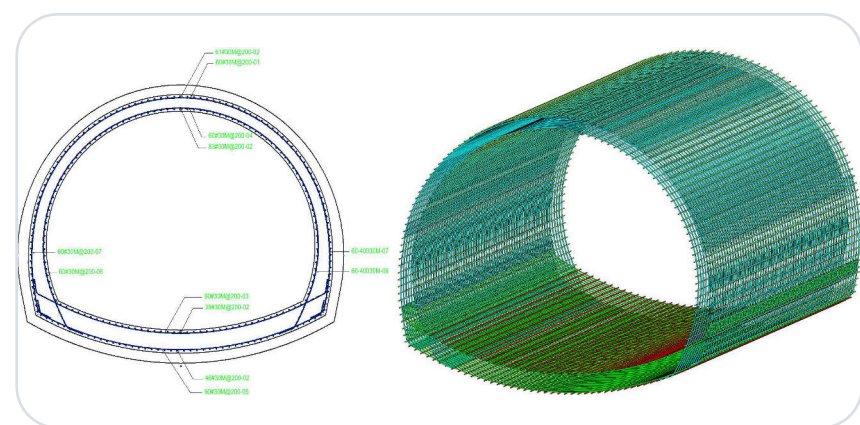


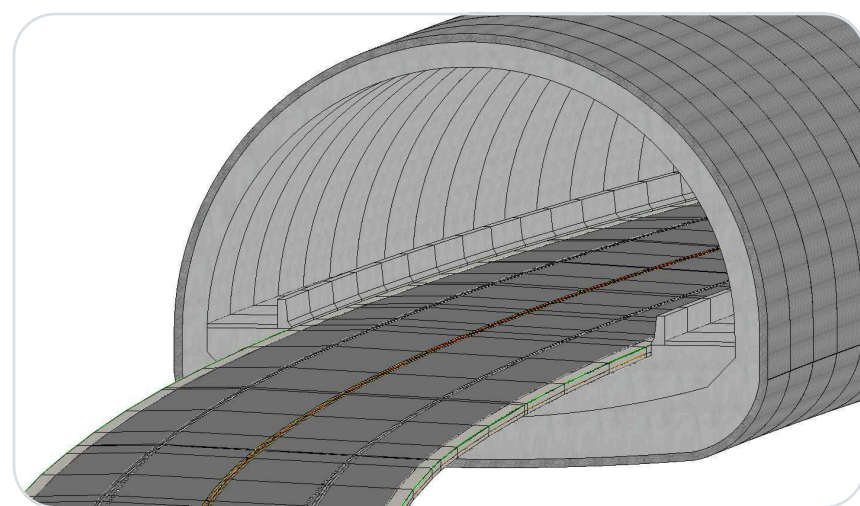
Image courtesy of AYESA Engineering

OpenTunnel® Designer

Tunnel modeling fully interoperable with analysis and design



Model and detail rebar reinforcement.



Link civil geometry.

OpenTunnel Designer is the first and only purpose-built software for tunnel modeling and design. It introduces a single common data environment so all project stakeholders can reliably consume and share up-to-date data. Easily exchange information with Leapfrog®, PLAXIS®, OpenRoads™, OpenRail™, OpenBridge®, and ProStructures™ to identify errors early and create alternatives for optimum design, safety, and performance.

Get the right tools for the job

OpenTunnel Designer produces intelligent, parametric models that are rich in engineering content properties for various tunnel components. Model the full excavation shape, excavation tracks, tunnel lining and tunnel reinforcement. The software includes advanced capabilities for concrete pile modeling, flexible cross-passage intersection tools, and precise tunnel trimming and void creation. Model, analyze, and design as a true 3D solution, as well as perform clash detection with other structures, objects, and utilities to eliminate problems before they occur. Model detailed steel arch supports for conventional tunnels to generate accurate quantity takeoffs, improve cost estimation, and enhance structural design confidence.

Simplify your design process

OpenTunnel Designer reuses data from various stakeholders, thus maintaining relevant and up-to-date geometry within a single model. Save valuable design time as your model updates automatically to any change made in the tunnel template or alignment geometry. Comprehensive and automated design tools remove the need for scripting specialists and multiple applications. This includes an integrated rebar modeler, adapted from ProStructures, providing comprehensive rebar modeling, drawing, and reporting tools. Matched with dynamic change management, it mitigates rework and reduces time delays with all team members now working in one intuitive application.

Efficient collaboration

OpenTunnel Designer allows direct referencing of DGN models with road, rail, and bridge information created with the OpenRoads, OpenRail, and OpenBridge applications. If reference data changes, the parametric and rule-based tunnel model automatically responds to those changes. Enhanced integration with OpenGround® ensures seamless transfer of geological data for comprehensive analysis.

Improve deliverables production

Modeling in a 3D environment helps rapidly verify tunnel geometry. The tunnel is seen in plan, elevation, and cross-section views. A variety of deliverables can be generated using OpenTunnel Designer. It also facilitates the evaluation of multiple tunnel alternatives, costs reports, and well-organized analysis and design reports. Create annotated plans, elevations, and sections using MicroStation's Dynamic View feature and OpenRoads' Named Boundaries. Easily publish project information with a variety of report generation options. Reports can be printed to PDF, saved as HTML files, or exported to spreadsheets. New automated drawing capabilities include TBM UTR (Universal Tapered Ring) unfolded views and ring position drawings, significantly reducing manual effort. Generate iTwins to convey rich project information to stakeholders. Create precise "as-built" digital twins for TBM universal tapered rings tunnels, for a full lifecycle asset management.

System requirements

OpenTunnel Designer at-a-glance

Minimum: Intel Pentium-based, AMD, or Athlon-based processor 2.0 GHz or greater, Windows 11 (64-bit), 8 GB RAM, 10 GB free disk space; 1 GB of video RAM or greater
Recommended: 32 GB RAM

Ease of use

- Intelligent graphical user interface
- Imperial and metric (SI) units
- Comprehensive 3D physical tunnel modeling
- User-customizable libraries
- Intuitive dialogue driven workflows

Tunnel modeling and visualization capabilities

- Conventional and mechanized tunnel types, including universal tapered rings
- Full excavation shape, excavation tracks modeling
- Tunnel lining modeling
- As-built TBM universal tapered rings tunnel modeling
- Tunnel reinforcement
- Detailed steel arch support modeling for conventional tunnels
- Construction stages
- Interior objects as extrusion or cells
- Parametric, intelligent tunnel components including Functional Components
- Intuitive, dialogue-driven workflows
- Rule-based and constraint-driven modeling
- Clash detection
- Solid and transparent views
- Lifelike rendering by loading the tunnel model in Bentley LumenRT™
- Reference bridge, roadway, and railway information along with geotechnical data

Versatile reporting options

- Customized and dynamic reports
- Material quantities report
- Input reports
- Cost estimate report
- Construction stages report
- TBM UTR (Universal Tapered Ring) reports
- Formats: PDF, MS Word, MS Excel, and HTML

Integration with other software

- Direct data exchange with MicroStation®, OpenRoads, OpenRail, OpenBridge, ProStructures, and PLAXIS
- File formats: DGN, XML, LandXML, IFC, and PY
- Import geomodelling data from Leapfrog and OpenGround

Automated drawing generation

- Plan, profile and cross section drawings
- Automated TBM UTR unfolded views drawings
- Automated TBM UTR ring position drawings

Automated analytical model creation

- Send soil layers geometry with analytical properties to PLAXIS 2D
- Send tunnel and reinforcement geometry with analytical properties to PLAXIS 2D/3D
- Full 4D analysis in PLAXIS 2D/3D
- Enhanced data transfer to PLAXIS 3D for bar reinforcements, including support for the beams, volumes and "dummy beam" approach
- Improved workflows for transferring borehole data from OpenGround to PLAXIS for compatible geotechnical analysis