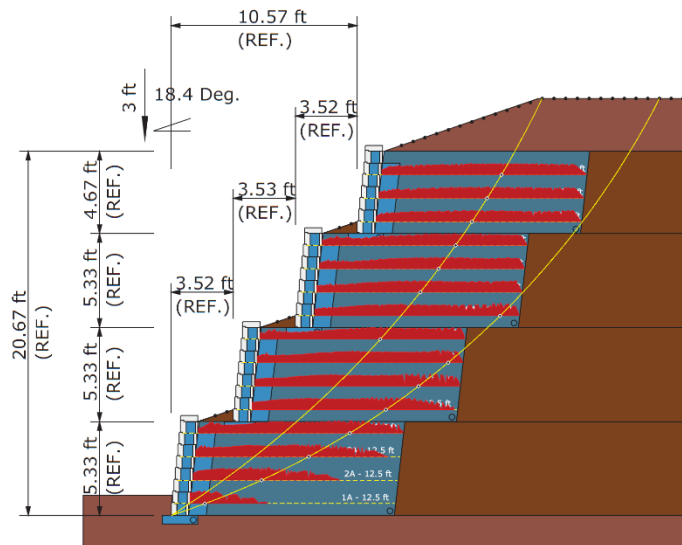


AB Walls 3D+Terraces Design Software Continues to raise the bar!

At Allan Block, AB stands for Always Better! In keeping with this motto, the team at Allan Block continues to support and enhance our AB Walls Design Software to provide the most comprehensive and powerful program in the Segmental Retaining Walls (SRW) industry. Along with all the standard design functions you expect like internal, external, bearing and seismic calculations, AB Walls does complicated analysis like Internal Compound Stability (ICS) and is the only SRW software able to design Complex Composite Structures (CCS). On the heels of the extraordinary introduction of AB Walls 3D, the platform continues to set a new height of engineering sophistication with the newest release, AB Walls 3D+Terraces. +Terraces builds on the easy-to-use design tool with the continued goal of providing the users the enhanced design tools they need to make their designs accurate, efficient, and provide a source to timesaving confidence.

Terraced Structures:

Terraced structures are a common requirement for job sites around the world and until now, a designer would have to make design assumptions using an ordinary SRW program or do the terraced wall calculations by hand. With the introduction of AB Walls 3D+Terraces, a designer can do internal, external, and seismic designs for multi-level terraces. Designers can define the geometry walls including the individual heights and offsets. Designers can apply surcharges above any wall as well as introduce slopes above each.



External design calculations are done using standard calculations, designing the lowest wall first with the others as an applied surcharge. Each wall is designed in a similar manner. Typical designs have all walls having Geogrid layers equal to at least 60% of the total structure height.

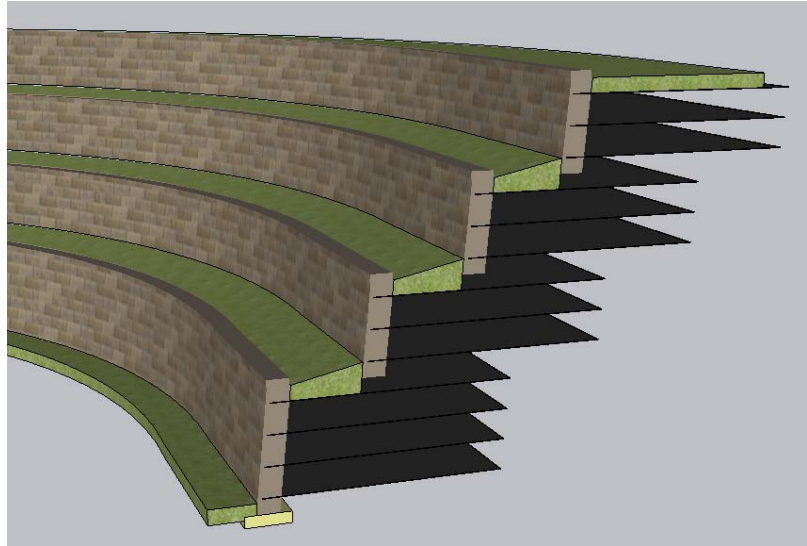
Internal calculations are accomplished using the Limit Equilibrium Method (LEM) of design developed by Prof. Dov Leshchinsky over many years of research. LEM was adopted by the Federal Highway Department (FHWA), AASHTO and the National Concrete Masonry Association (NCMA) as a viable alternative to internal design calculations and using LEM makes the complex internal calculations of a terraced structure possible. You can read more about LEM on our website or in our [LEM design Tech Sheet](#). All the great functions in AB Walls has been incorporated into the terraces features of the program, such as: the ability to export your design to a DXF drawing file, a 3D modeling file used in Sketch up and the ability to export

individual cross section to a file that can be read in the global modeling program, ReSSA. This makes AB Walls 3D+Terraces the most comprehensive SRW Design program in the market.

Why 3D Modeling?

3D Modeling is taking AB Walls 3D+Terraces to the next level. It will be a benefit to all that use this software. Design professionals have been using 3D modeling to help them with site and building designs for many years with BIM (Building Information Modeling) technology and now Allan Block is introducing it into retaining wall design.

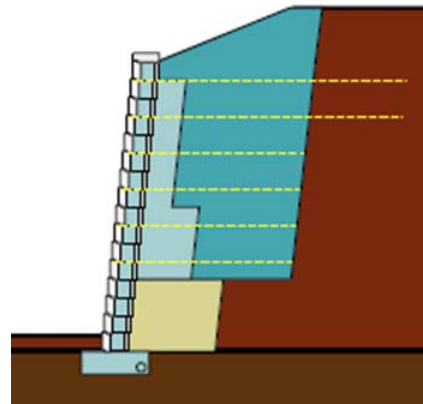
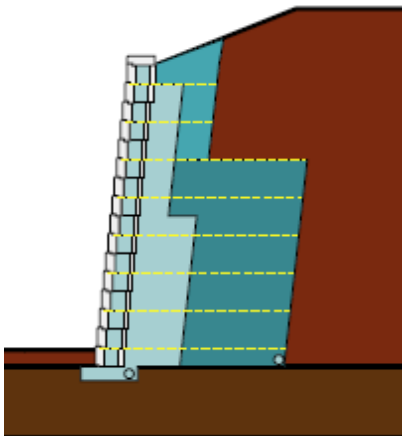
AB Walls 3D+Terraces allows design professionals from all areas of discipline to take 2D drawings and simply export them into a 3D model. This will provide an advantage of showing customers what their walls could look like before they are constructed. 3D Modeling will allow users to review grid placement behind the wall, possibly saving construction time by seeing potential obstructions. AB Walls 3D+Terraces may provide a competitive edge by providing more complete design packages, including a 3D model to help secure future projects.



Complex Composite Structures:

As our industry has grown, the complexity of designs has grown as well, and providing tools for the designers to design walls easily and efficiently is a must. Complex geometries for walls are becoming more of the norm than the exception, and AB Walls 3D+Terraces can design sections with varied structure depths to accommodate commonly found site obstructions, which we are

calling Complex Composite Structures (CCS). AB Walls 3D+Terraces also enables wall designs using no-fines concrete as the base material. This is perfect when encountering bedrock or obstructions lower in the wall. A detailed discussion on the CCS design methodology is available in the **Allan Block Engineering Manual** on allanblock.com.

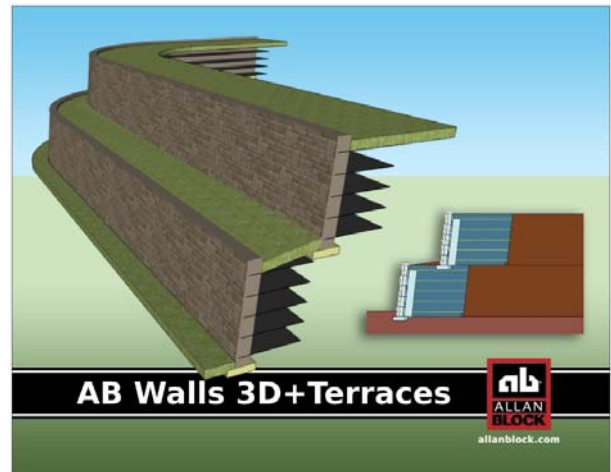


Best Practices for SRW Design. Allan Block created a Best Practices manual and assisted the National Concrete Masonry Association (NCMA) to develop their own publication. The release of these two manuals has set a fire under the SRW industry to push for positive change by enhancing the SRW design and construction practices in support of the NCMA's Zero Wall Failure Initiative. Every aspect of AB Walls 3D+Terraces was developed with this in mind and to help educate and promote better design and construction practices. For a comprehensive review of the design methodologies and of the best practice document, see the **Engineering Manual** and the **Best Practices for SRW Design** manual at allanblock.com.

Detailing:

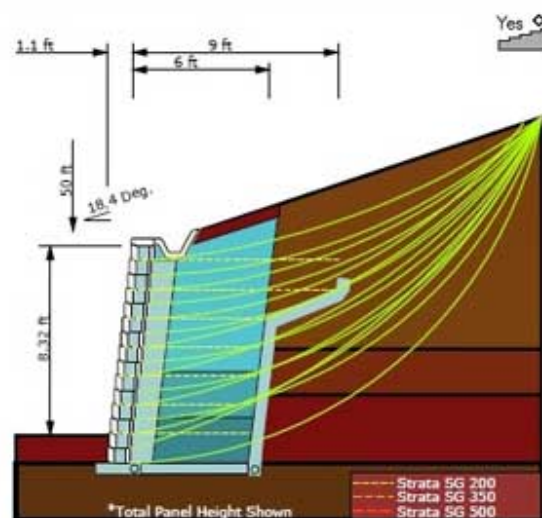
One of the most difficult parts of the design and build process for segmental walls is transferring the design requirements to the contractor. AB Walls 3D+Terraces provides comprehensive **Submittal and Shop Drawing Outputs** to allow that:

- Fully detail the wall profile with specific stationing and elevations of all step ups and step downs on the top and bottom.
- Provide multiple panel cross sections along the profile to thoroughly detail the design variations that can occur along the length of the wall.
- Display site specific wall drainage details directly on the panel cross sections. Blanket drains, chimney drains, drainage swales, etc. can now be shown directly on the cross section.
- Fully detail the plan view with stationing and geogrid depths. Knowing the geogrid depth allows the designers and contractors to avoid possible grid obstructions during construction.
- Provide individual panel views connected directly to their design panel section to provide clarity for grid placement.



Contact the Allan Block Engineering Dept. for installation assistance or to schedule a software tutorial.

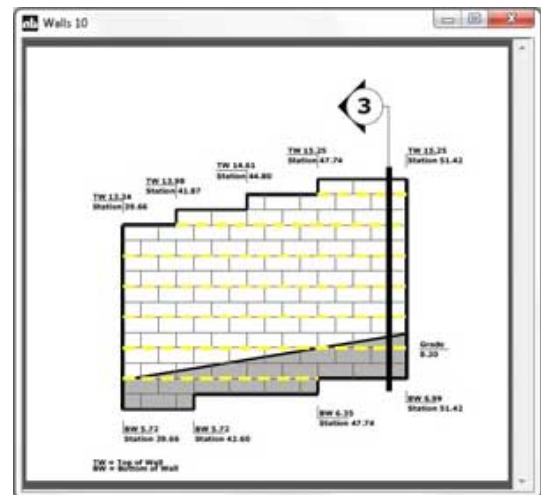
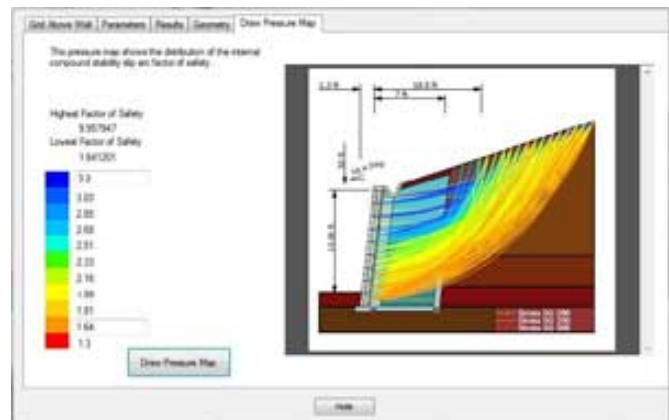
*(952) 835-5309
engineering@allanblock.com*



Design:

AB Walls 3D+Terraces has a number of design functions to make your design more complete and more detailed:

- It is possible to model **up to three different soil layers** for both the infill and retained soil layers. This multiple soil layer modeling is available in the Internal Compound Stability calculations section.
- **Trial Wedge Design Methodology** for slopes above in seismic regions. This provides an alternative to the traditionally used Mononobe Okabe (M-O) method that greatly limits the steepness of slopes above any seismically loaded wall.
- **Pressure Mapping** allows you to graphically see the results from the Internal Compound Stability analysis.
- Internal Compound Stability (ICS) analysis can also be applied to No-Fines Concrete designs. Recently completed independent testing has provided a conservative design friction angle which allows the designers to utilize the benefits of ICS calculations on No-Fines Concrete sections as well as geogrid applications.
- Each panel calculation is independent, so the design may be completed with geogrid in one panel and No-Fines Concrete in the next panel, each having their independent loading conditions. This provides complete design flexibility.



Output:

AB Walls 3D+Terraces provides both a **Submittal Output** for the engineers to submit for design review and a detailed **Shop Drawing Output** for use in the field.

- Both packages include all detail functions listed above. However, the Submittal Output provides safety factor information for:
 - Internal Calculations
 - External Calculations

- Bearing Calculations
 - Static and Seismic Loading
 - Internal Compound Stability (ICS) Calculations
 - Internal Compound Stability (ICS) Pressure Mapping
 - Complex Composite Structure (CCS) Calculations
- Choose from 32 typical details to be used in either PDF or DXF formats.
 - All design information in the Shop Drawing Output can be exported to .DXF format for use in any computer aided drafting program. Included are the Profile View, Plan View, Sections and Panel View, General Notes, Specifications and Specific Section Notes.

ReSSA Export:

Allan Block has worked closely with the designers of ReSSA, the industry leading global stability analysis program, for many years and AB Walls 3D+Terraces can be exported to a ReSSA file. This allows the wall designer to easily transfer information from AB Walls 3D+Terraces to ReSSA to investigate the Global Stability of the project site.

AB Walls 3D+Terraces continues to allow the design community the flexibility they require to tackle the real-world changes that they face on a daily basis.

Contact us:

For any questions, please see the Allan Block Engineering Manual, or contact the Allan Block Engineering Department at (952) 835-5309 or by email at engineering@allanblock.com.

