

Bodem- belichtingstool

Bas Van Aken | Zon in Landschap - Summit 2025

Wednesday, 3 December 2025



Foto © B.B. Van Aken

Achtergrond

- Fotosynthese
- Vastlegging van koolstof
- Voedselketen
- Gezonde bodem

Eerste norm voor voldoende licht



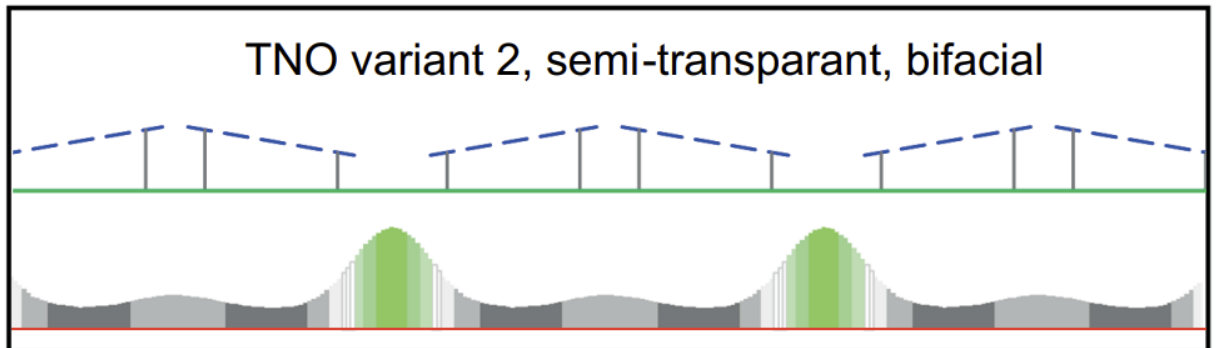
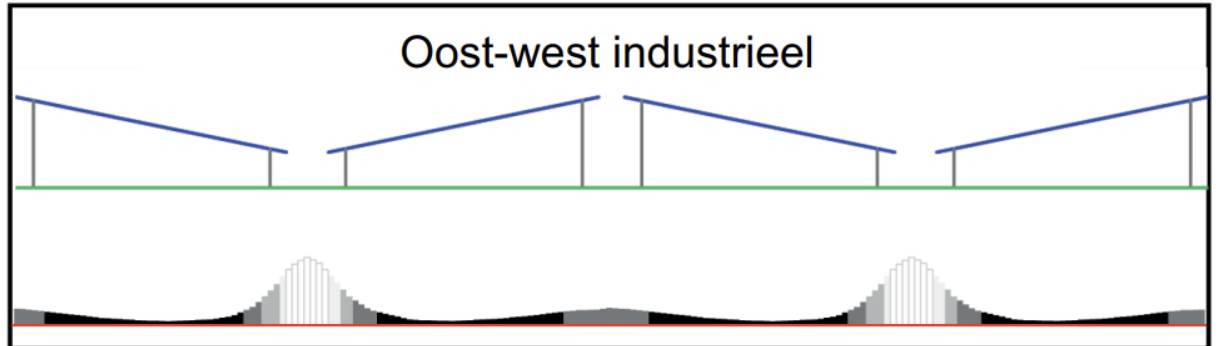
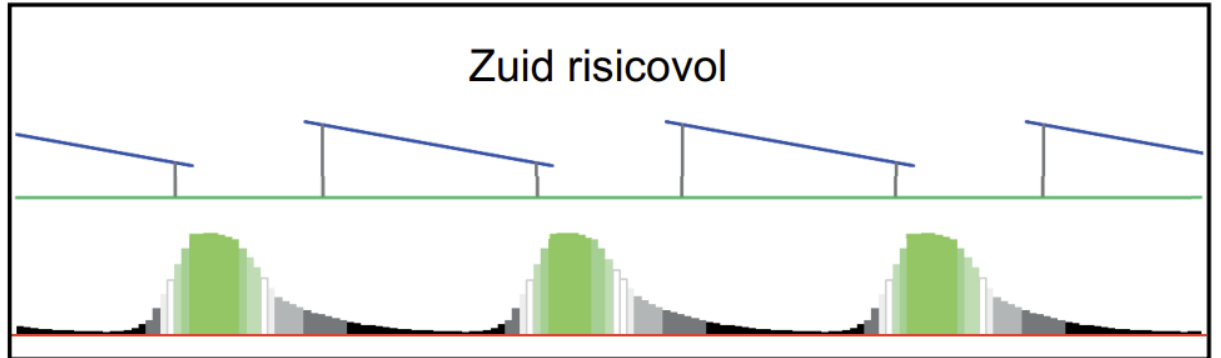
Zuid



Oostwest



Oostwest met semi-transparante panelen



Eerste norm voor voldoende licht

- Harde eis
 - 10% van licht op het open veld – horizontaal
- Verdere normen voor hogere belichting:
 - Minimaal 60% van het land >15% licht
- 25% van het land met >40% licht meestal,
 - tussen de tafels
 - net onder de lage zijde van de tafels

BIGEYE bodembelichtingstool

- Eenvoudige input voor
 - Zuid orientatie
 - Oost&West systeem
 - Verticaal
- Berekening van lichtintensiteit op de bodem
 - Doorsnede dwars op de tafels
- Toetsing van lichtintensiteit aan geldende norm
 - Geordende instraling per herhalingseenheid

BIGEYE bodembelichtingstool

- Laptop met Runtime R2025a – 25.1
- Executable van BIGEYE BBT
- Typisch meteorologisch jaar, TMY, voor Amsterdam met 10-minuten tijdstappen

BIGEYE bodembelichtingstool

- Opstarten van executable duurt een paar minuten
- Keuze uit
 - South;
 - East-West;
 - Vertical
- Met [CTRL]+”+” en [CTRL]+”-” kan de tekst groter of kleiner

BIGEYE BBT manual

- Installation guide, step-by-step
- Full description of all options
- Full description of soil irradiance report



Invoer Zuid-systemen

Parameters (South)

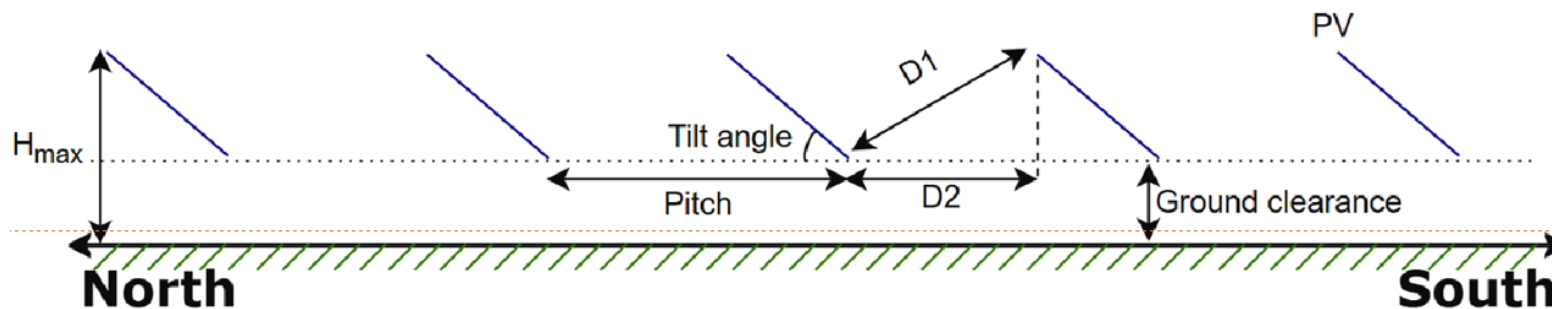
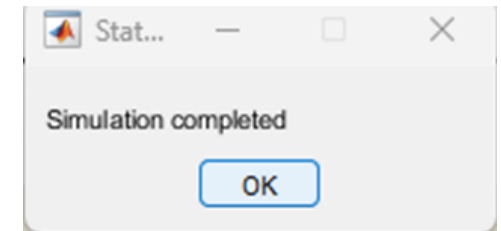
Module long side (m)		Calculated parameters	
Module short side (m)			
Module transparency (%)			
Module orientation	Select ▼		
Number of modules		Ground coverage ratio (%)	NaN
Gap between two long sides (m)		D1 (m)	NaN
Gap between two short sides (m)		D2 (m)	NaN
Pitch (m)		Max height, H_max (m)	NaN
Tilt angle (degrees)			
Ground clearance (m)			
Field orientation (degrees)			

output dir C:\BIGEYE\projects\EcoCertified\Ground Irradiance Tool

run soil irradiance test close plots

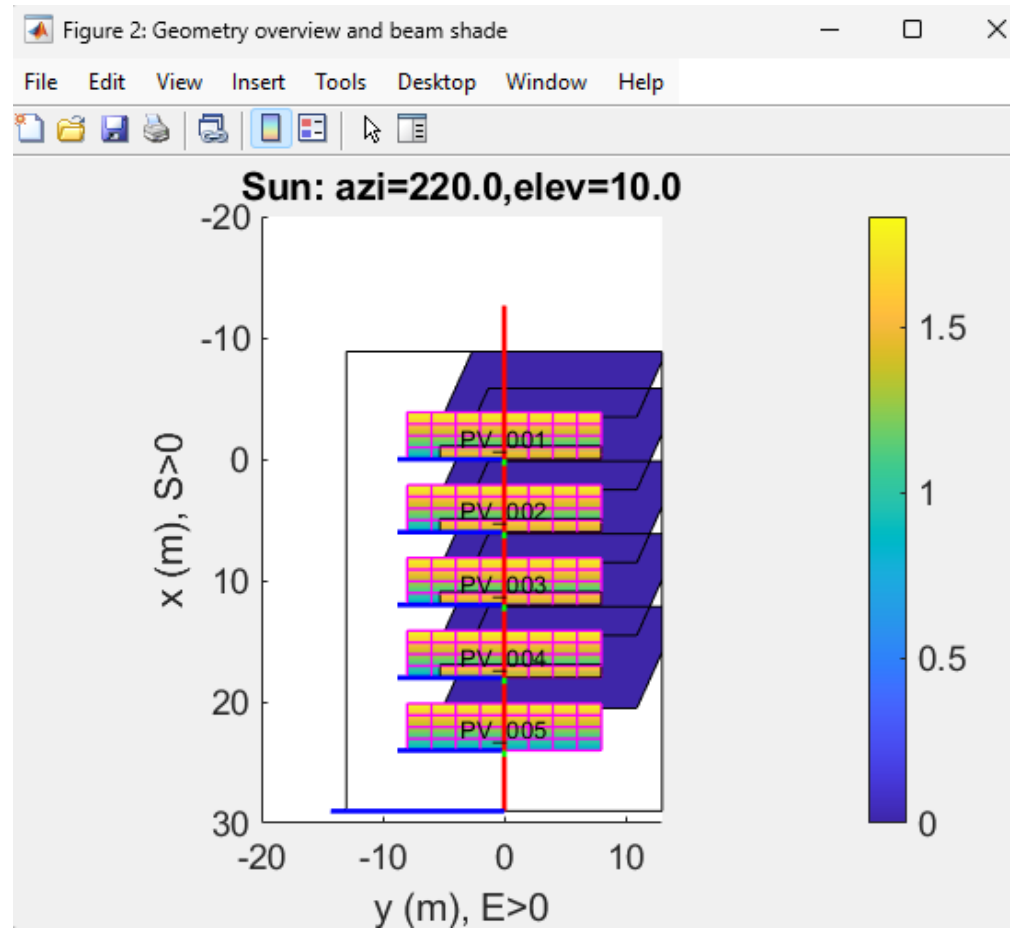
Controle

Parameters to be filled



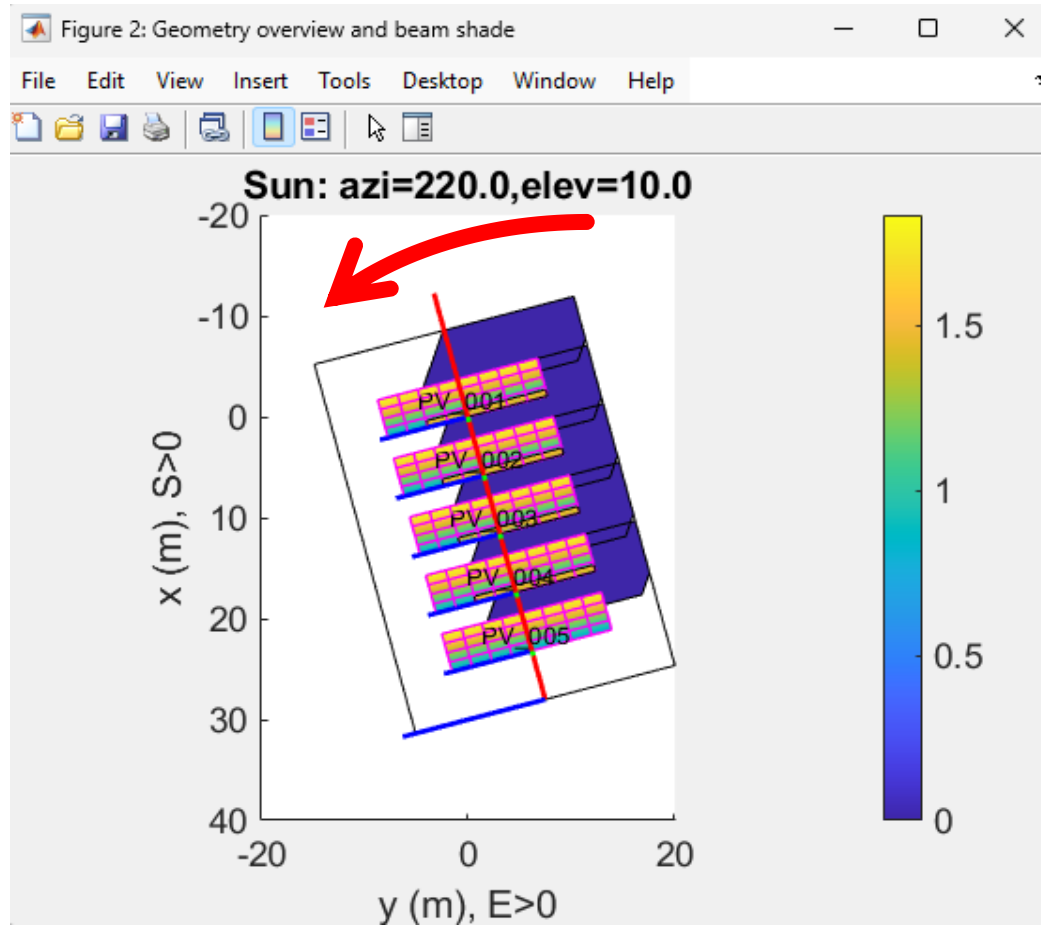
BIGEYE orientatie van het veld

Field Orientation (Degrees) = 0

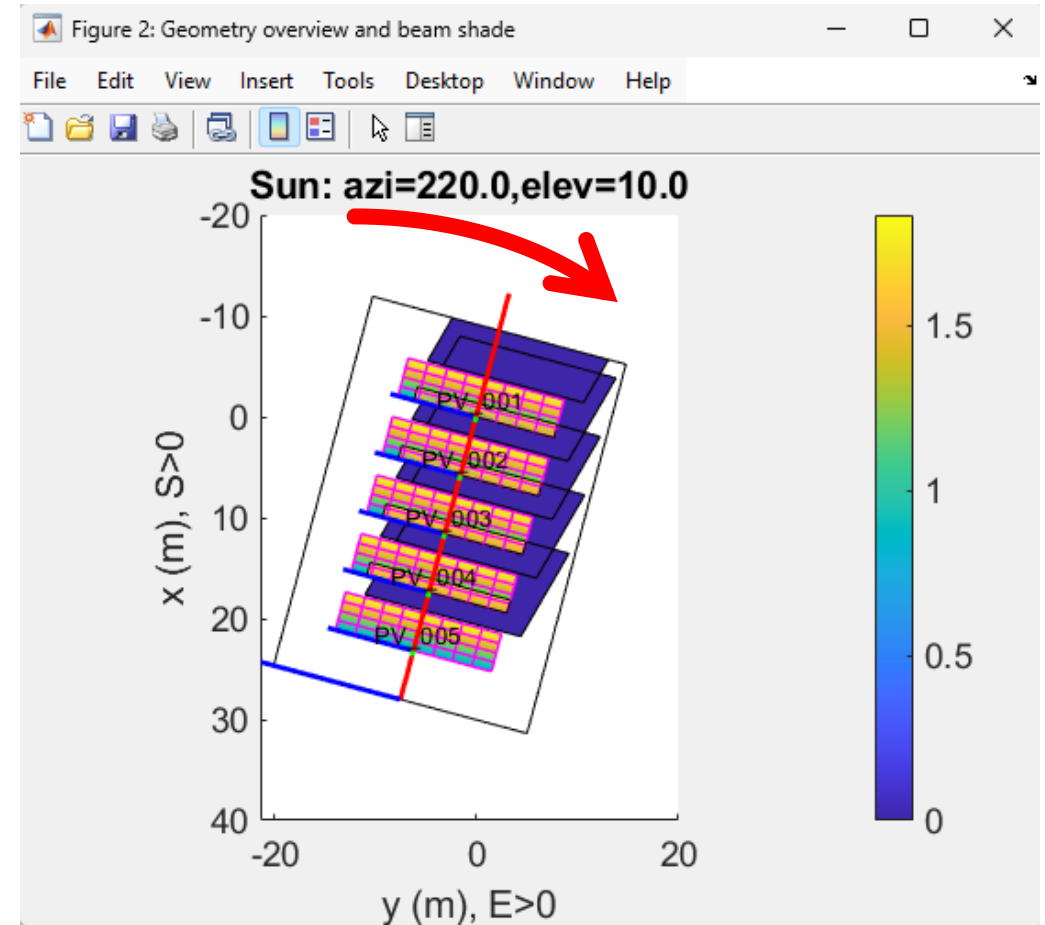


BIGEYE orientatie van het veld

Field Orientation (Degrees) = -15



Field Orientation (Degrees) = +15



South configuration

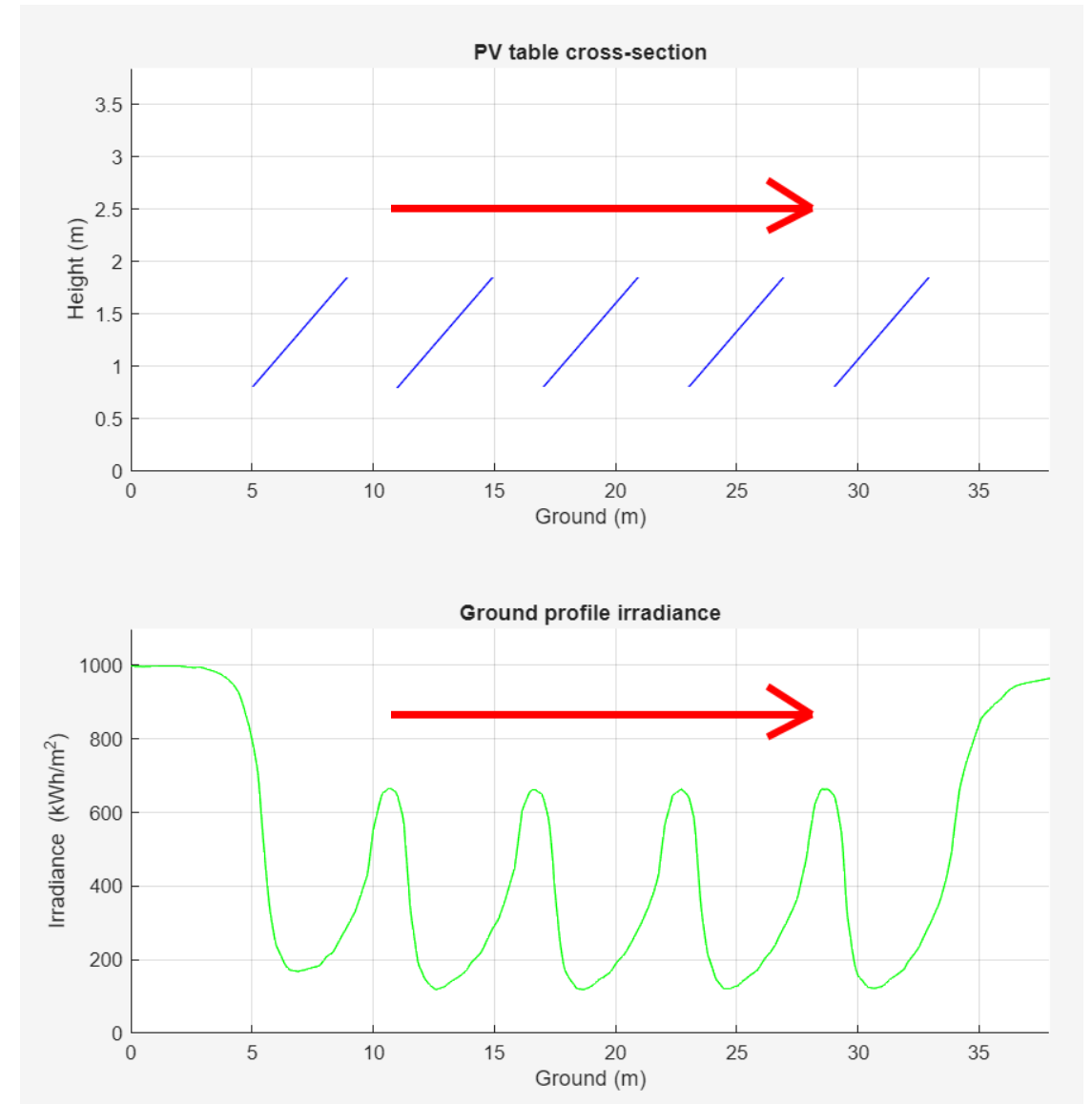
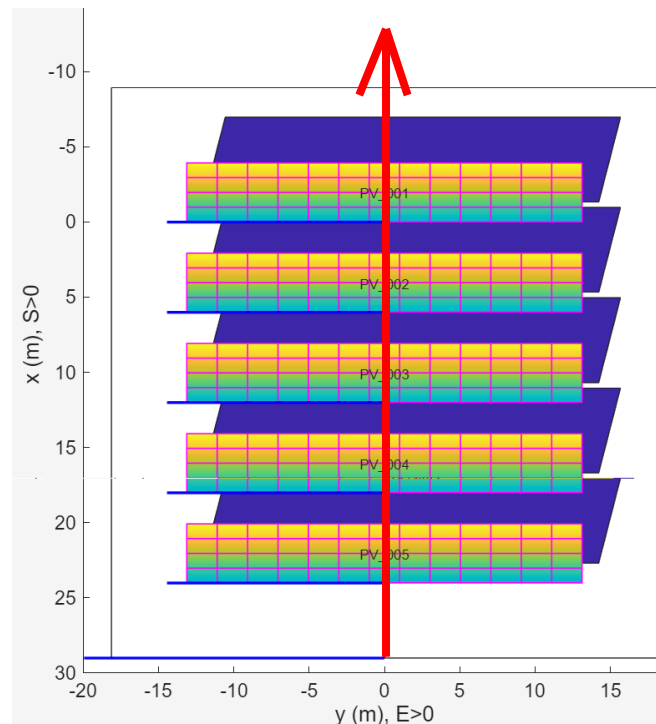
Figure 2:

Top view of simulated configuration

Figure 3:

PV table cross-section: cross-section through PV tables (height and distance not to scale)

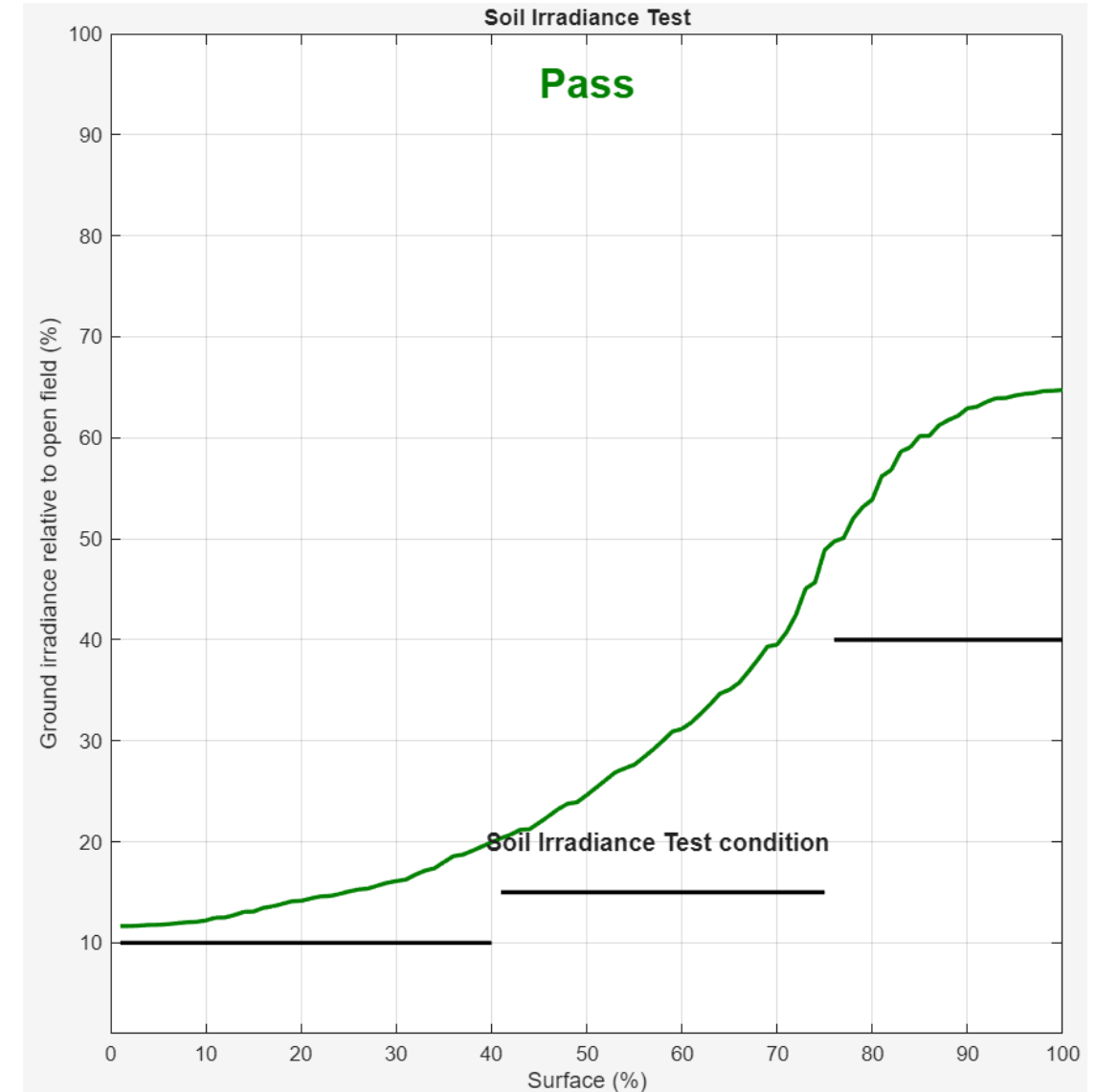
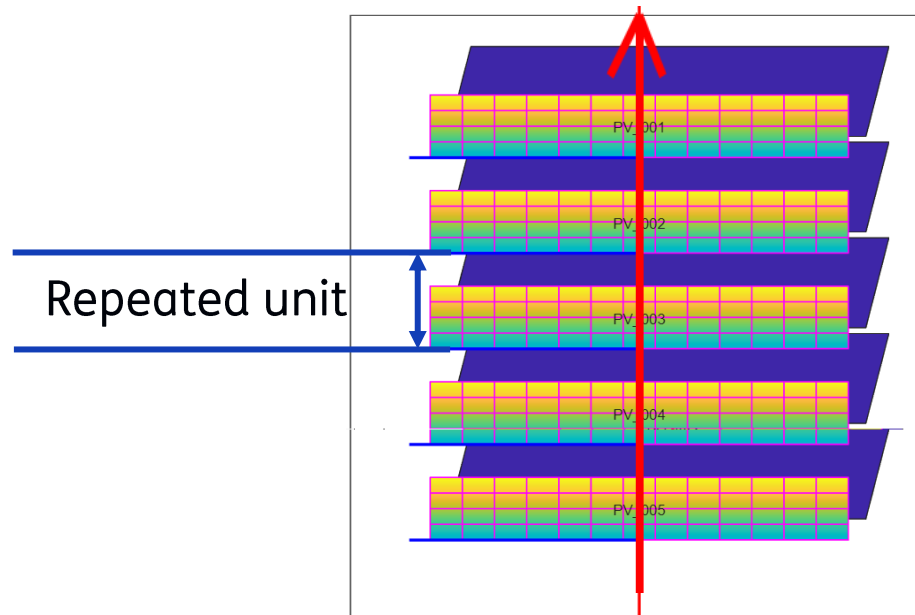
Ground profile irradiance: light on ground for cross-section through the middle



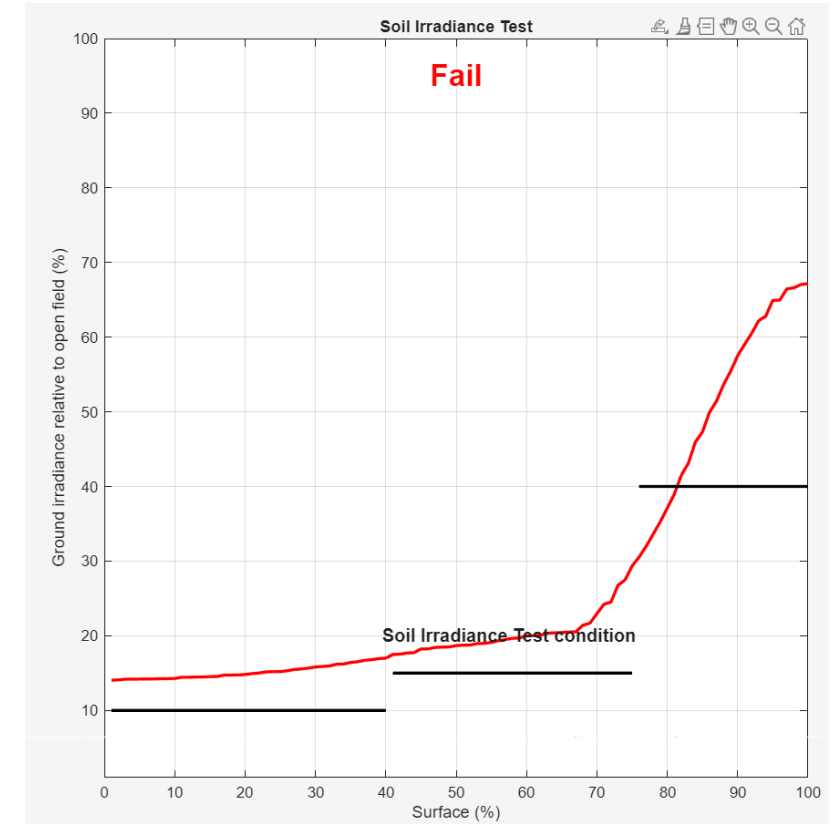
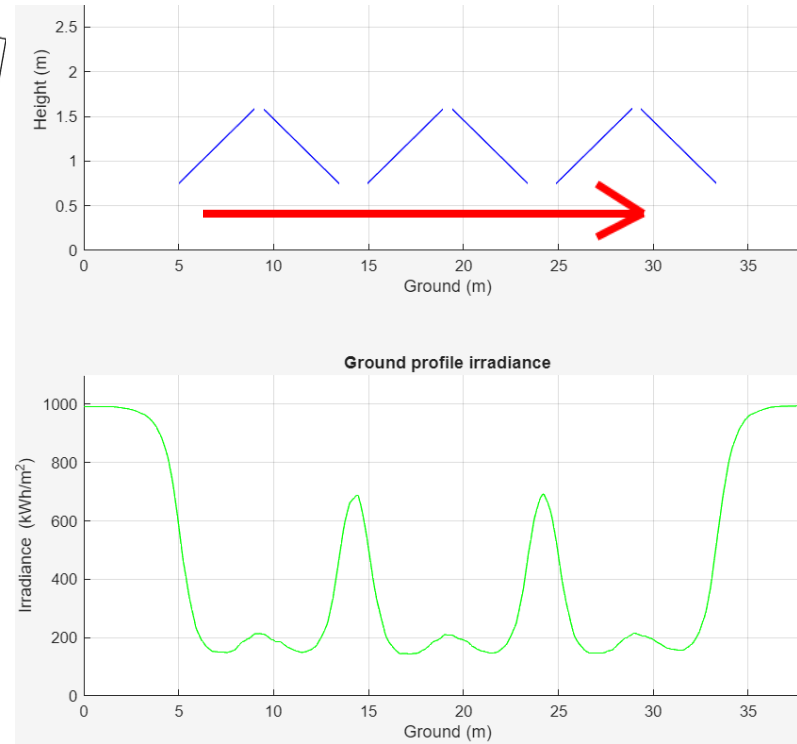
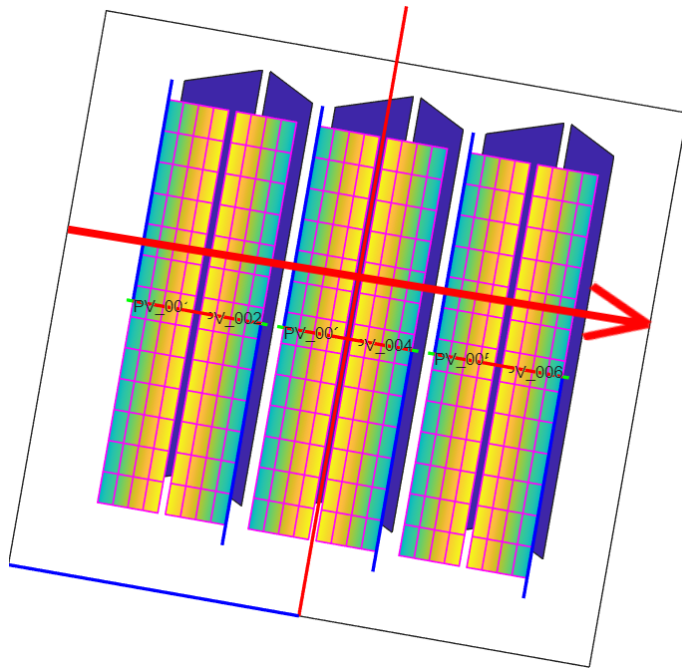
South configuration

Figure 4: Soil Test

1. This plot is the soil test result
2. The Text in the graph area indicates whether the design is a “**PASS**” or “**Fail**”
3. The bold black lines in the form of steps are the soil test requirements
4. The blue line with markers is the ordered ground irradiance for the repeated unit



East-West configuration



Soil Test result for Vertical configuration

