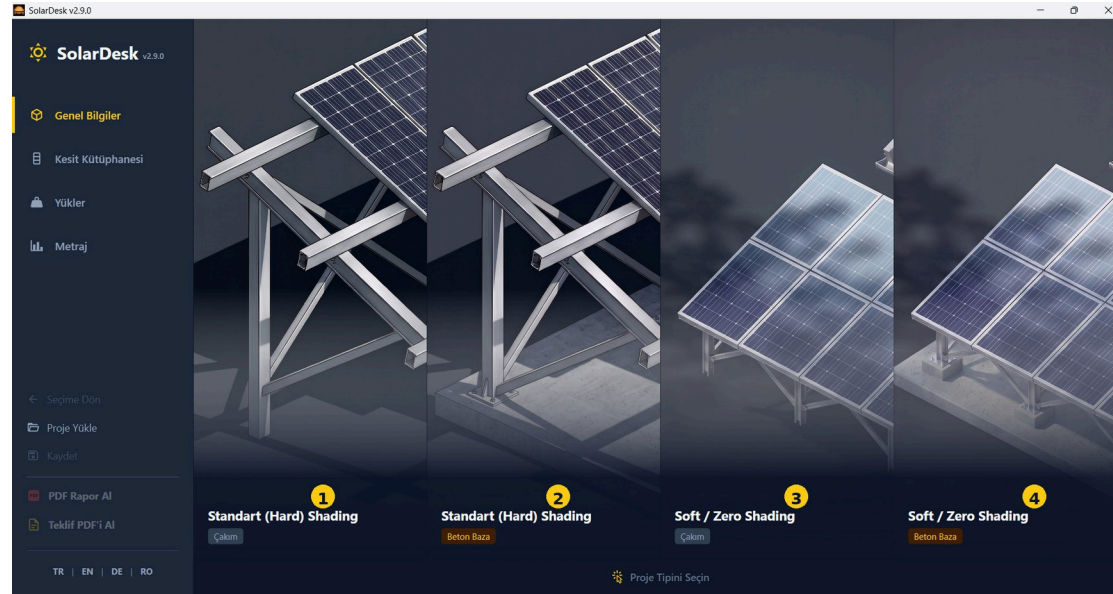




Quick Start User Guide

SolarDesk v2.9.0 | September 2026



PURPOSE

This guide explains the main steps needed to create your first project and get the basic outputs.

1. About This Guide

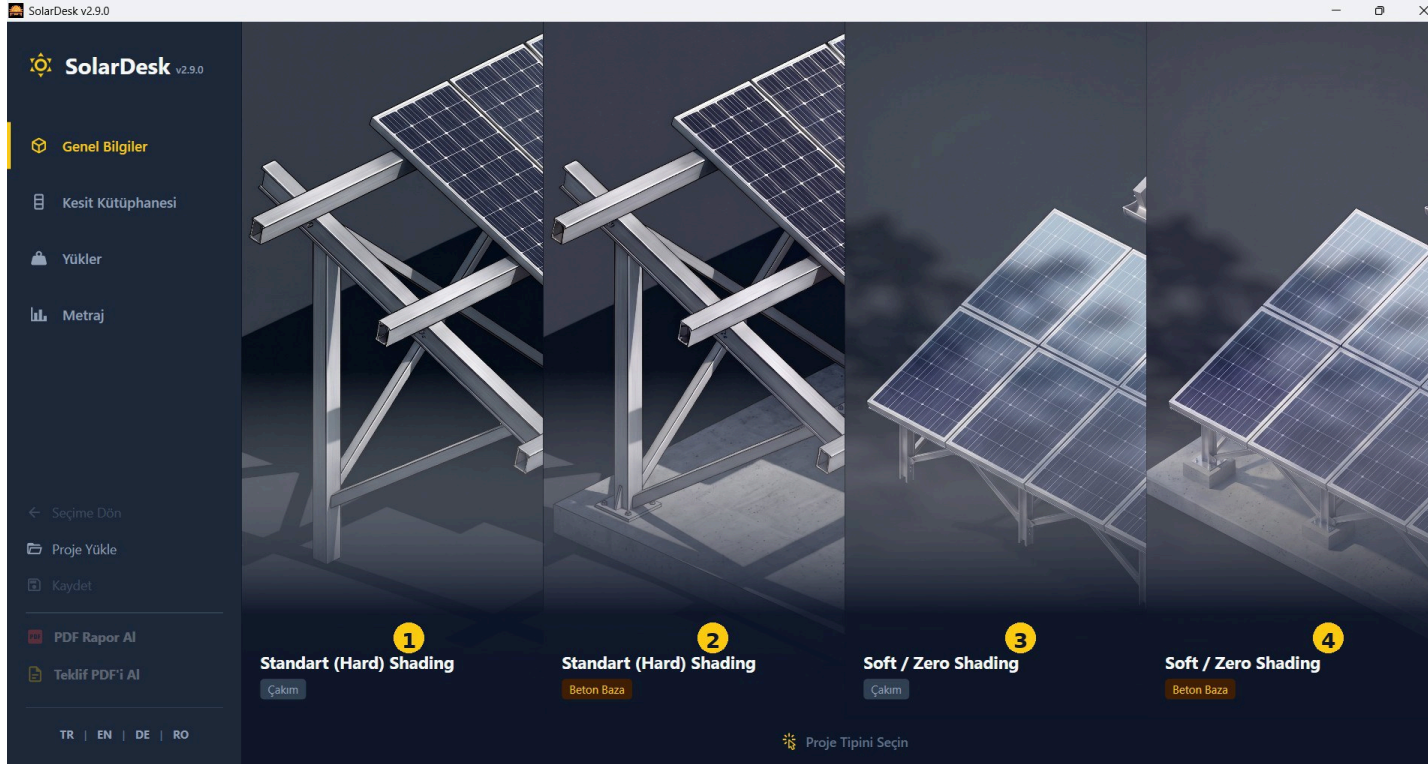
Recommended order of work for first-time use

1 Choose the project type Select the structural system and foundation solution.	2 Enter the general data Complete the geometry and connection data.	3 Prepare the section lists Check materials, sections and AutoList candidates.	4 Define loads and build the model Verify the loads, enter the target stress ratio and start the analysis.	5 Review the results Check the design, bill of quantities and connection outputs.
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IMPORTANT	The sample values on the screens are only there to show how the interface is used. Project geometry, load and material assumptions must be verified by an authorised engineer.
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2. Project Type Selection

When starting a new project, the structural system and foundation solution are selected.



1 Standard / Driven Pile

System with the standard four-purlin geometry and posts driven into the ground.

2 Standard / Concrete Ballast

System with the standard four-purlin geometry on concrete foundations.

3 Soft-Zero / Driven Pile

Zero-shading system with driven posts (suitable for bifacial modules).

4 Soft-Zero / Concrete Ballast

Zero-shading system on concrete foundations (suitable for bifacial modules).

NEXT STEP

When you select the appropriate card, the program moves on to the General Data screen. If you chose the wrong one, use “Back to Selection” to return to the start screen.

3. General Data

The main project data that define the system geometry are entered on this screen.

1 System Dimensions

Enter the terrain type, module dimensions and layout, post spacing and count, module height, clamp spacing and the planned purlin dimensions.

3 Spring Definition

Select the model with or without springs, depending on your modelling approach.

2 Connections and Details

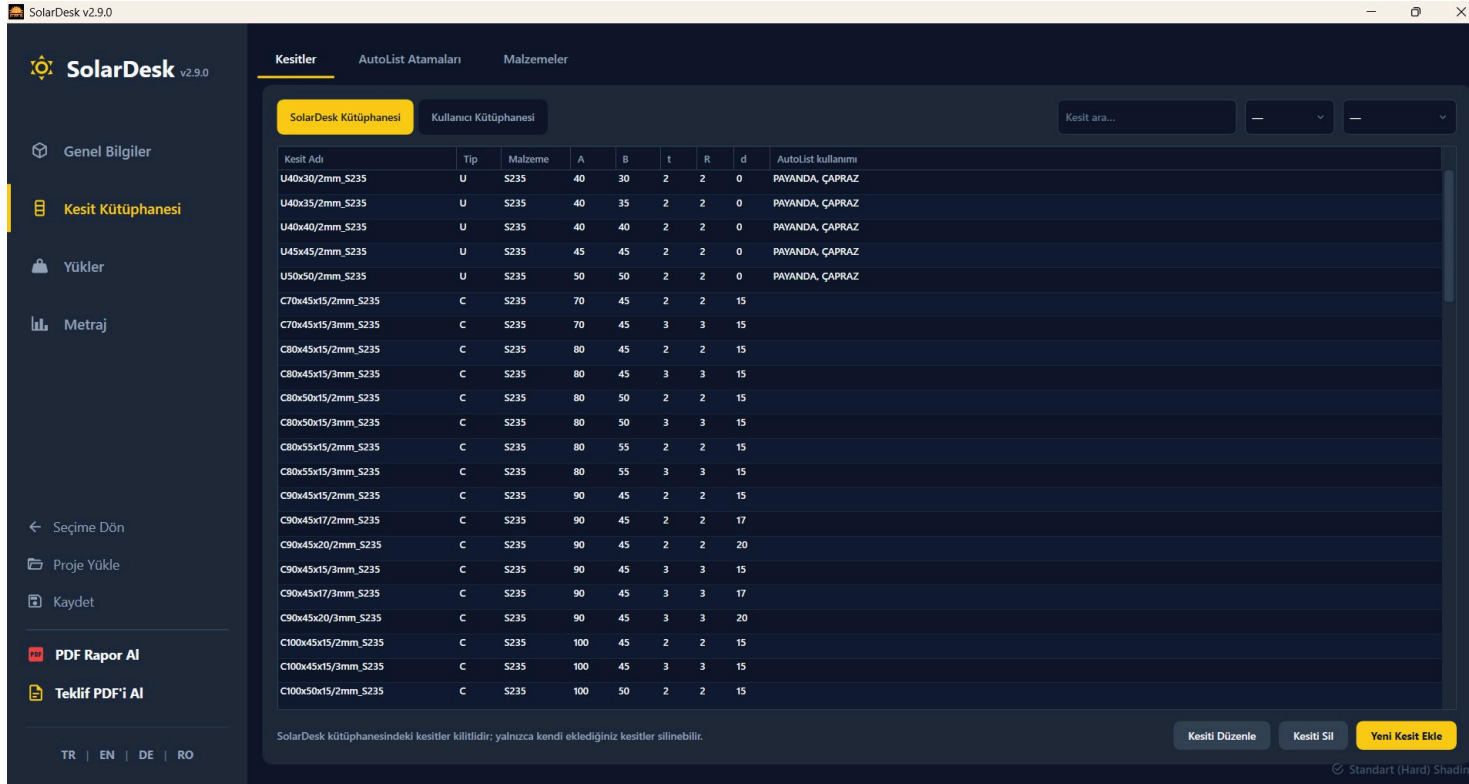
Select the module tilt and strut type. Strut Connection Distance is the vertical height, measured from the ground, at which the strut connects to the post; Brace Connection Distance is the same height for the brace. Enter the strut angle, the front/rear post embedment depths and the front-rear post spacing according to the project geometry. If drilled holes with concrete are used instead of direct driving, tick the relevant box; drawings and the report are prepared accordingly.

4 Calculated Geometry

Purlin length, cantilever length and rafter length are calculated automatically from the data entered; check the results before continuing.

4. Section Library

Sections that can be used in the SAP2000 model are managed through the built-in SolarDesk library and user-defined sections.



1 SolarDesk Library

View the ready-made sections that come with the program. These sections are locked and cannot be changed or deleted.

3 Search and Filter

Find suitable sections quickly with the section name, type and material filters.

RECOMMENDED ORDER

2 User Library

View the sections you have added in a separate list; only user sections can be edited and deleted.

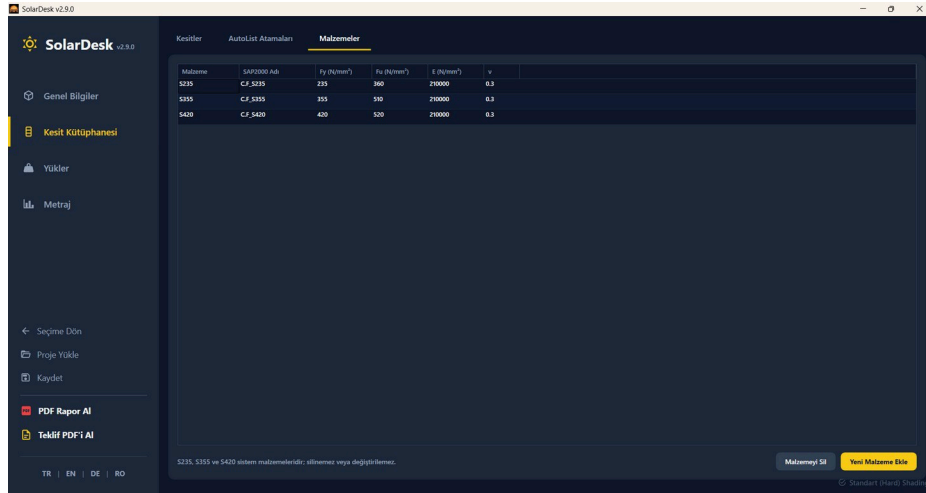
4 Add New Section

Define a profile geometry that is not in the standard list, together with its material, and add it to the user library.

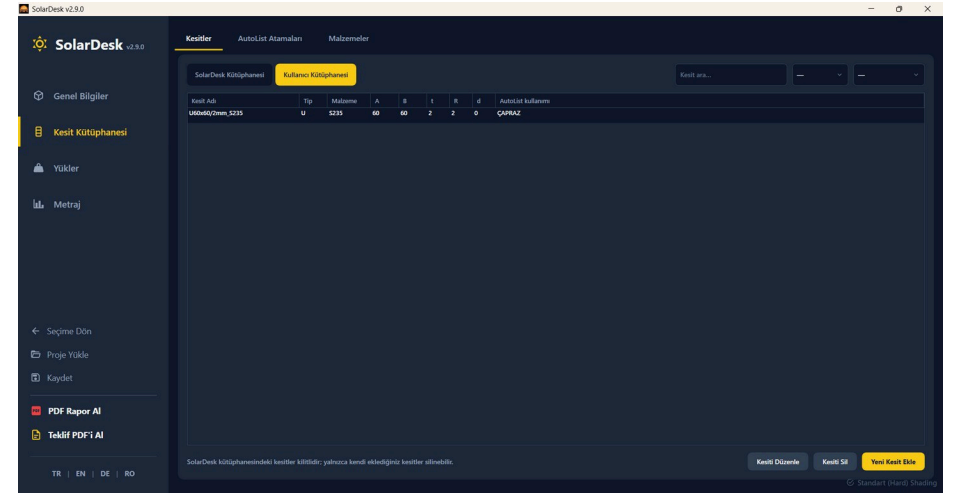
If a special steel grade will be used, first define the material on the Materials tab, then add the new section that uses this material.

5. Defining Materials and User Sections

In addition to the standard options, project-specific materials and sections can be saved to the user library.



Materials



User Library

1 New Material

Define the material name, SAP2000 name, yield and tensile strengths, modulus of elasticity and Poisson's ratio.

3 New Section

Create the new section by choosing the profile type, geometric dimensions and material. The record appears under User Library.

CHECK

2 System Materials

S235, S355 and S420 are the program's system materials; they cannot be changed or deleted.

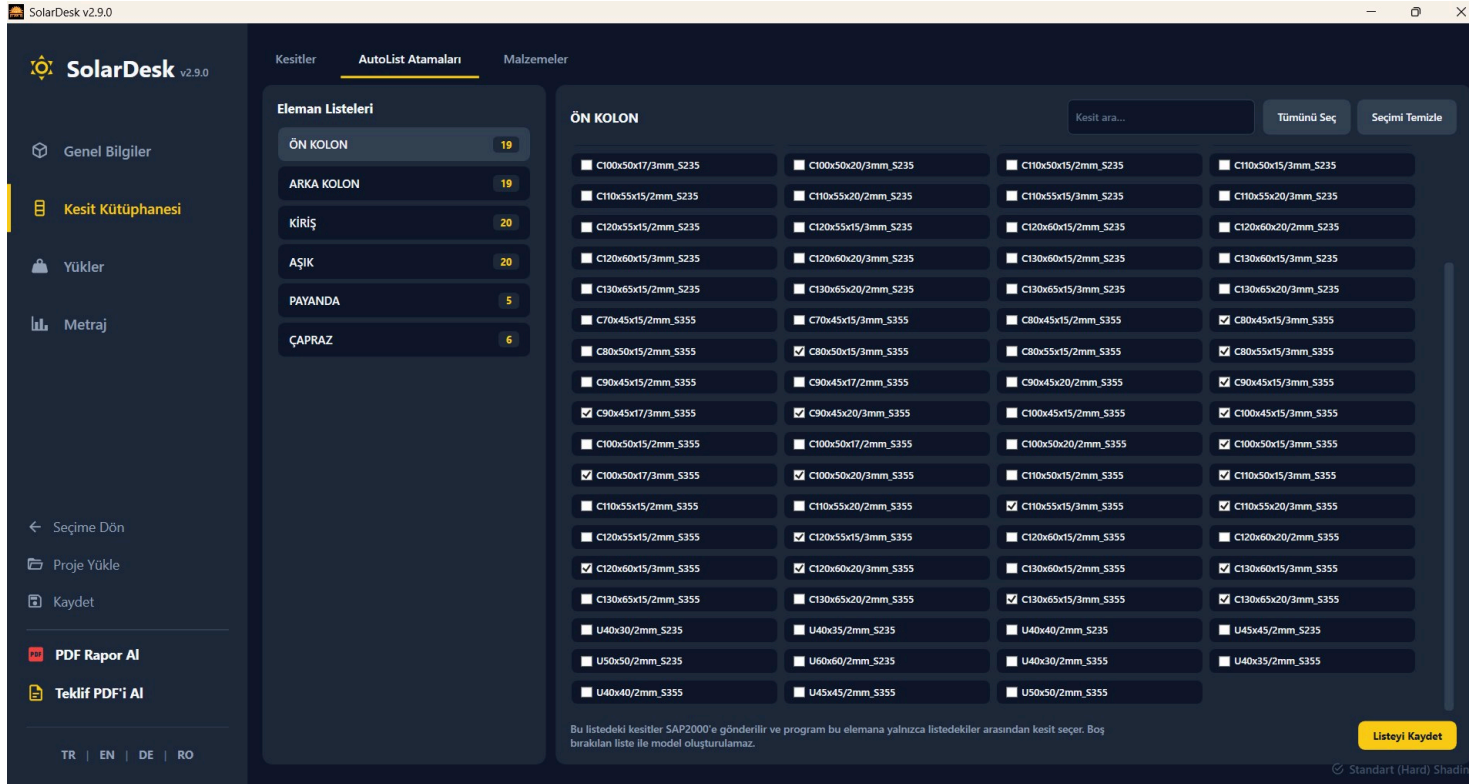
4 Edit and Delete

You can update or delete user sections. The ready-made sections in the SolarDesk library are protected.

Make sure section and material names match the naming used in SAP2000.

6. AutoList Assignments

For each member group, the candidate sections to be considered in automatic section selection are defined.



1 Select the Member Group

Open the front post, rear post, rafter, purlin, strut and brace lists one by one.

3 Save the List

Complete the selections for each group and store the AutoList configuration with the “Save List” command.

REQUIRED

2 Mark the Candidate Sections

Select the sections the program is allowed to consider for that member group.

4 Target Stress Ratio

Enter the target stress ratio just before the model is created. SolarDesk automatically assigns each member group the lightest section, from the selected candidates only, that comes closest to the target.

Every member group must have at least one candidate section. A model cannot be created with an empty AutoList.

7. Defining the Loads

Wind, snow, module and temperature loads are completed before the analysis.

1 Wind Load

Choose the automatic formula or manual input method. With the automatic calculation, check the wind speed, terrain category and analysis coefficients. With manual input you can enter the loads you calculated for each purlin separately.

4 Temperature Load

Enter the temperature rise $T(+)$ and temperature drop $T(-)$ to be considered in the project.

2 Snow Load

Select the design code and location; verify the altitude and topography coefficient. Where needed, you can change the S_k value using the manual input option.

5 Start the Analysis

Check the inputs and start the analysis. Enter the target stress ratio before the model is created.

3 Module Load

Enter the PV module weight. The distributed area load and the line load on the purlins are calculated automatically.

8. Quick Check Before Analysis

Verify the items below before using the “Start Analysis and Drawing” command.

01 Correct project type

Driven pile/concrete ballast and shading selection match the project.

04 Load assumptions

Wind, snow, module weight and temperature differences match the project data.

02 Module geometry

Module dimensions, layout and clamp distances have been checked.

05 Section candidates

The AutoList of every member group is saved and no list is empty.

03 Structural geometry

Post spacings, counts, heights and connection details are correct.

06 Analysis environment

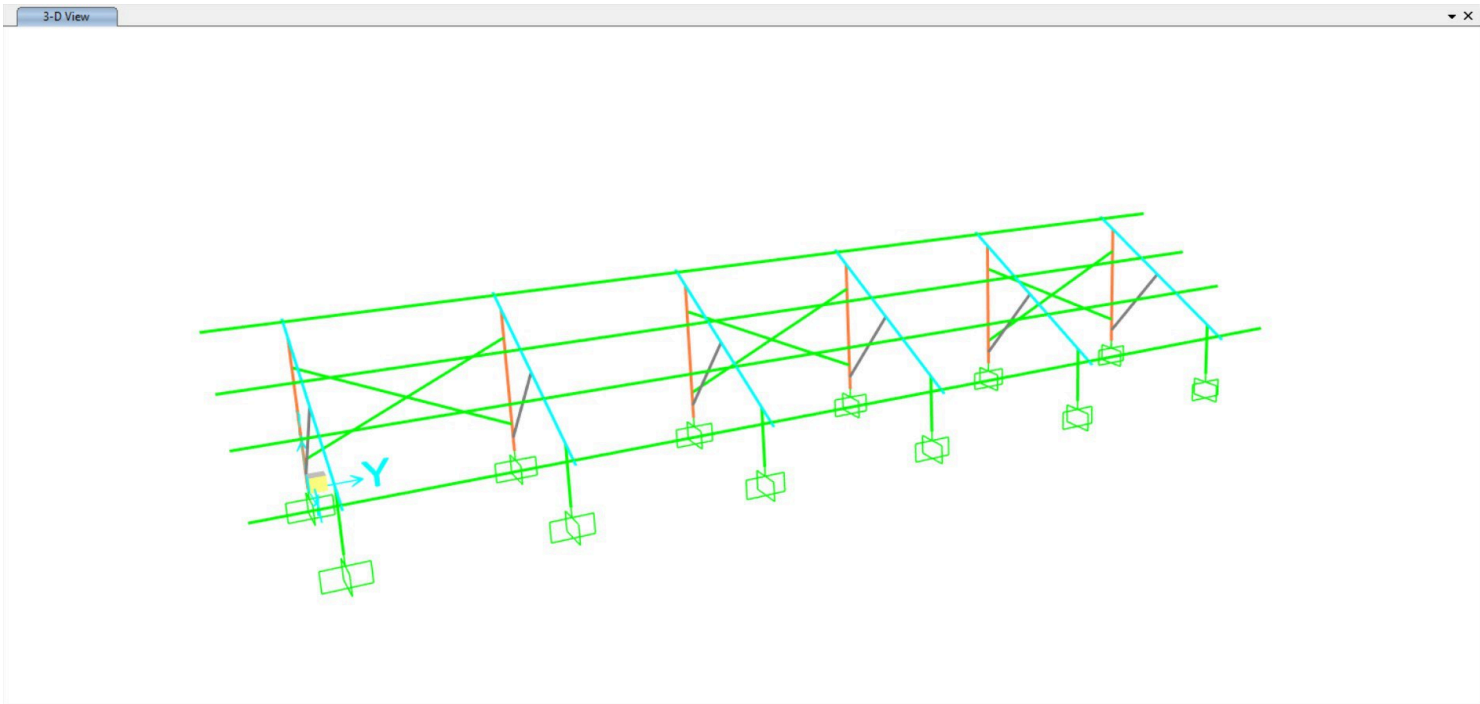
The target stress ratio is set; a compatible SAP2000 installation and a valid licence are ready.

TIP

Working with a small, familiar project on the first attempt lets you verify inputs and results faster.

9. Automatic Section Assignment and SAP2000 Model

SolarDesk automatically creates an analysis-ready SAP2000 model from the project inputs.



1 Target Stress Ratio Enter the required target stress ratio before the model is created. This value is the optimisation target of automatic section selection.	2 Automatic Section Assignment For each member group, SolarDesk evaluates the AutoList candidates and assigns the lightest section that comes closest to the target ratio.
3 Analysis-Ready Model Geometry, loads, support conditions and member end releases are defined in the SAP2000 model automatically.	4 Engineer Review The engineer adjusts the seismic parameters, reviews the design outputs and verifies the final suitability of the automatically assigned sections.
RESULT	The model created is ready for analysis. Automatic section selection speeds up the initial design; the final section decision and engineering verification are the user's responsibility.

10. Bill of Quantities Results

The bill of quantities is created automatically by selecting the member data in the SAP2000 model.

SolarDesk v2.9.0



SolarDesk

v2.9.0

Genel Bilgiler

Kesit Kütüphanesi

Yükler

Metraj

← Seçime Dön

Proje Yükle

Kaydet

PDF Rapor Al

Teklif PDF'i Al

TR | EN | DE | RO

Metraj

Bağlantı Elemanları

Masa Adedi

3

Panel Gücü (Wp)

580

4

MW

28,16

M

1

JI AKTAR

Çelik Malzeme Detayları

	T	H	B	L	t	b	MATERIAL	Adet / Seha	Toplam Adet	Uzunluk (mm)	Ağırlık (kg/m)	Birim Ağırlık	Siyah Ağı. (Seha)	Beyaz Ağı. (Seha)	Siyah Ağı. (Top)	Beyaz Ağı. (Top)
ARKA KOLON	C	80	45	15	3	176.0	C.F_S355	6	600	3,126	4.14	12.96	77.74	80.85	7,774.11	8,085.08
ÖN KOLON	C	90	45	15	3	186.0	C.F_S355	6	600	1,890	4.38	8.28	49.68	51.67	4,968.14	5,166.87
Kiriş	C	70	45	15	2	174.0	C.F_S355	6	600	3,586	2.73	9.80	58.78	63.48	5,877.74	6,347.96
AŞIK	C	70	45	15	2	174.0	C.F_S355	4	400	15,132	2.73	41.34	165.35	178.58	16,535.04	17,857.84
ÇAPRAZ	U	40	30	0	2	92.0	C.F_S235	6	600	3,141	1.44	4.54	27.22	29.40	2,722.31	2,940.10
PAYANDA	U	40	30	0	2	92.0	C.F_S235	12	1200	1,105	1.44	1.60	19.15	20.68	1,914.75	2,067.93
TOPLAM AĞIRLIKLAR													397,92	424,66	39,792,10	42,465,78

Standart (Hard) Shading

1 Import Quantities

As a first step, click the “Import Quantities” button. The program asks which SAP2000 project you want to take the quantities from.

3 Enter the Project Scale

Enter the number of tables and the module power so that the total project quantities are calculated at the correct scale.

ATTENTION

2 Select the SAP2000 Project

Select the analysis model whose quantities you want to prepare. After selection, the steel material table is created automatically.

4 Review the Results

Check the section, material, count, length and weight per member, together with the Ton/MW result.

The bill of quantities reflects the current section assignments in the selected model. After the design check, select the correct model and refresh the quantities.

11. Connection Elements

Bolt, nut, washer and lock washer quantities are arranged according to the connection points.

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Genel Bilgiler

Kesit Kütüphanesi

Yükler

Metraj

← Seçme Dön

Proje Yükle

Kaydet

PDF Rapor Al

Teklif PDF'i Al

TR | EN | DE | RO

Metraj

Bağlantı Elemanları

☒ Mouse Klomp

Aşık Bağlantı Parçası

3

Excel'e Aktar

Bağlantı Noktası	Bulon Adedi	Bulon Tipi	Adet/ Masa	Boy	Toplam	Standart	Kaplama	Toplam	Standart	Toplam	Standart	Toplam	Standart	Toplam	Bulon Kalitesi
Kolon-Kiriş	2	M12	24	30	2400	DIN933	Sıcak Daldırma Gal	2400	DIN934	☒ 2400	DIN127	☒ 4800	DIN 125-127	8.8	
Aşık-Kiriş	1	M12	24	30	2400	DIN933	Sıcak Daldırma Gal	2400	DIN934	☒ 2400	DIN127	☒ 4800	DIN 125-127	8.8	
Kolon-Çapraz	1	M12	12	30	1200	DIN933	Sıcak Daldırma Gal	1200	DIN934	☒ 1200	DIN127	☒ 2400	DIN 125-127	8.8	
Kolon-Payanda	1	M12	24	30	2400	DIN933	Sıcak Daldırma Gal	2400	DIN934	☒ 2400	DIN127	☒ 4800	DIN 125-127	8.8	
Aşık-Aşık	4	M12	48	30	4800	DIN933	Sıcak Daldırma Gal	4800	DIN934	☒ 4800	DIN127	☒ 9600	DIN 125-127	8.8	
Panel Bağlantısı	4	M8	56	30	5600	DIN933	A2-70 Paslanmaz	5600	DIN934	☒ 5600	DIN127	☒ 11200	DIN 125-127	8.8	

Standard (Hard) Shading

1 Additional Options

Choose whether mouse clamps are used and set the number of purlin connection pieces per table. When ticked, mouse clamp quantities are added to the Excel table and the report automatically.

2 Connection Table

For each connection point, check the bolt count, type, length, standard, coating and property class.

3 Export to Excel

Export the approved list of connection elements in Excel format.

FINAL CHECK

Total quantities are based on the selected number of tables. If there are special connection details or project exceptions, update the table before exporting.

12. PDF Report Preparation

The “Get PDF Report” command opens the preparation screen where you complete the report content.

1 Project Information

Enter the province, district, block, parcel and project name.

2 PGA Values

Enter the DD-3 and DD-2 PGA values manually for the automatic check of seismic drifts.

3 Deflection Check

Select the deflection limit coefficient and the deflection combinations to be used in the report.

4 SAP2000 Images

Add the rafter deflection and the Ex and Ey drift images taken from SAP2000 to the relevant fields.

5 Logo and Attachments

Select the company logo and the soil survey, TDTH report or any other PDF files to be attached to the report.

6 Create the Report

After checking the information, prepare the engineering report with “Create”.

IMPORTANT

The automatic assessment of seismic drifts cannot be completed without the DD-2 and DD-3 PGA values.

ADDITIONAL INFORMATION — Design Code and Seismic Assumptions

The design code selected on the Loads screen determines the report content, the fields on the preparation screen and the method used for the connection check.

1 Where Is the Code Selected? It is selected from the “Design Code” list in the Snow Load section of the Loads screen. The wind module uses the same code; when the code changes, the connection check is recalculated.	2 TS-EN-1991 (Türkiye) The seismic calculation is based on TBDY 2018. The PGA (DD-3 / DD-2) and Ex/Ey drift image fields appear on the preparation screen; the connection check uses the ÇYTHYE 2018 / AISC 360-16 approach.	3 EN-1991 (Eurocode) Seismic headings, PGA fields and drift image selectors are not included in the report. The connection check uses the limit state method according to EN 1993-1-8 Table 3.4.
IMPORTANT		PGA (DD-3 / DD-2) values are specific to the AFAD Türkiye Earthquake Hazard Map. For projects outside Türkiye, these fields are not required when EN-1991 is selected.

13. Quotation PDF Preparation

You can combine several table types in a single quotation file and choose the report content.

Teklif PDF'i Oluştur

Teklif Girecek Projeler

Mevcut ProjeAçık proje
Proje_Hard_20260828_1933Hazır X
1+ Proje Ekle (sdp)

Rapor İçeriği

2YatTeknik Özellikler (Spec)Van GörünüşMetraj Tablosu
Panel Yerleşim PlanıBeton/Donatı Metrajı

Teknik Özellik Bilgileri

Panel ModeliARCLK-144PVM10
Güç3SatırGalvanize Thickness Complies with EN ISO 1461
Bağlantı SatırStandard Clamp / 8.8 HDG Connection Elements

Antet Bilgileri

4LogoSeçSeçilmedi
Firma AdıDEMO SOLAR
Talep Eden FirmaDEMO EPC
Proje AdıDEMO GES
Alt BaşlıkSistem Görünüşleri Teklif Çalışması

İptal

Oluştur5

1 Combine Projects

Select previously saved projects with “+ Add Project”. For example, 100 tables of 2x13 and 200 tables of 2x26 can be presented together in a single quotation PDF.

2 Choose the Report Content

Add or remove the title block, technical specifications, side elevation, bill of quantities, module layout plan and concrete/rebar quantities using the check boxes.

3 Technical Specifications

Edit the module model, galvanising and connection descriptions to suit the quotation text.

4 Title Block Information

Complete the logo, company, requesting company, project name and subtitle.

5 Create the Quotation

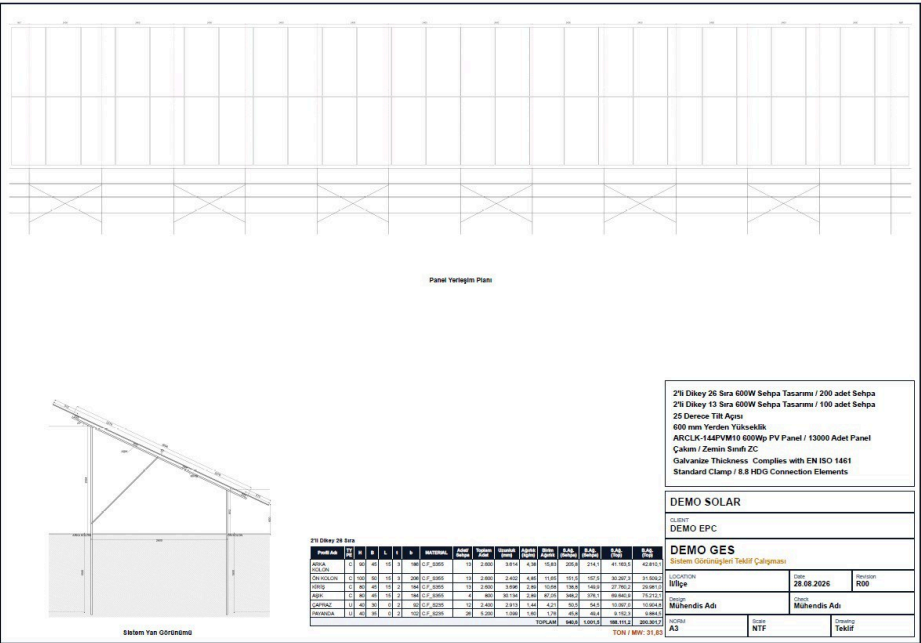
All selected projects and content headings are generated in a single quotation PDF.

EXAMPLE

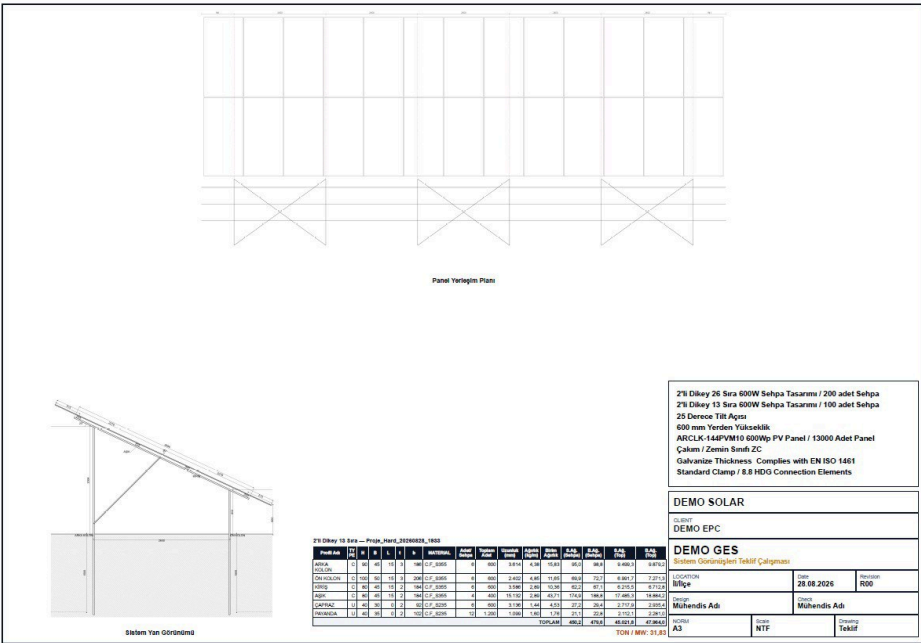
After solving and saving the 2x13 table project, open the 2x26 project. On the quotation screen, select the saved 2x13 project with “+ Add Project” to combine both table types in one report.

14. Combined Quotation Output

Each selected table type is presented in the same quotation file with its own layout plan, elevation and quantities.



Sample quotation page, 2x26 table type



Sample quotation page, 2x13 table type

ADVANTAGE

There is no need to prepare separate quotation files for different table types; saved projects can be combined into one integrated quotation file.

15. Left Menu and Outputs

Main commands used throughout the project

Command	Description
Back to Selection	Returns to the project type selection screen.
Load Project	Opens a previously saved project file.
Save	Saves the current project data for later use.
Get PDF Report	Opens the report preparation screen where PGA values, check images, logo and attachments are selected.
Get Quotation PDF	Opens the screen where you can combine several saved projects and choose the quotation content.
TR / EN / DE / RO	Changes the interface language to Turkish, English, German or Romanian.
Section Library	Manages material and section definitions, the user library and the AutoList candidates of the member groups.
TECHNICAL SUPPORT	If you have a technical problem, send the project file and the relevant screenshot to the SolarDesk support team.



ADDITIONAL FEATURE

Using Concrete Ballast

The standard project workflow was covered in the previous sections. This section only explains the additional inputs, modelling differences and ballast calculations needed when Concrete Ballast is chosen as the project type.

1 Additional Project Inputs

Extra fields for the concrete ballast geometry open on the General Data screen.

2 Modelling Difference

The ballast height is automatically deducted from the post lengths when the SAP2000 model is created.

3 Concrete Ballast Calculations

Overturning, minimum ballast length, reinforcement capacity and concrete/rebar quantities are calculated.

SCOPE

The section library, AutoList, load definition, target stress ratio, analysis, steel quantities, report and quotation steps continue to apply as described in the standard sections.

16. Additional Project Inputs

When the concrete ballast project type is selected, additional geometry fields specific to this system open.

1 Sistem Ölçüleri

Arazi Tipi
☐ Eğimsiz (Düz Arazi) ☒ Eğimli Arazi

Panel Ölçüleri (m) 2,278 x 1,134

Panel Dizilimi (Adet) 2 x 13

Kolonlar Arası Mesafe (m) 2,65

Kolon Sayısı (Adet) 2 x 6

Panel Yerden Yükseklik (m) 0,6

Klemp Mesafesi (m) 0,57

2 Bağlantı & Detaylar

Panel Açısı (°) 25

Payanda Tipi ☒ Arka Kolon - Kiriş ☐ Ön - Arka Kolon

Payanda Bağlanma Mesafesi (m) 0,1

Payanda Bağlanma Açısı (°) 45

Çapraz Bağlanma Mesafesi (m) 0,2

Ön-Arka Kolon Açıklık (m) 2,65

3 Baza Boyutları

Baza Yüksekliği (m) 0,5

Baza Genişliği (m) 0,5

Ön Kolon - Baza Ucu Mesafesi 0,5

4 Hesaplanan Geometri

Aşık Uzunluğu (m) 15,132

Aşık Konsol Boyu (m) 0,941

Kiriş Boyu (m) 3,586

TR | EN | DE | RO

Standart (Hard) Shading

1 Common System Dimensions

Module dimensions, layout, post spacings, post counts and module height above ground are defined as in standard projects.

3 Concrete Ballast Fields

Ballast height, ballast width and the distance from the front post to the end of the ballast are defined according to the project geometry.

IMPORTANT

2 Connections and Details

Enter the vertical heights at which the struts and braces connect to the post, and the front-rear post spacing.

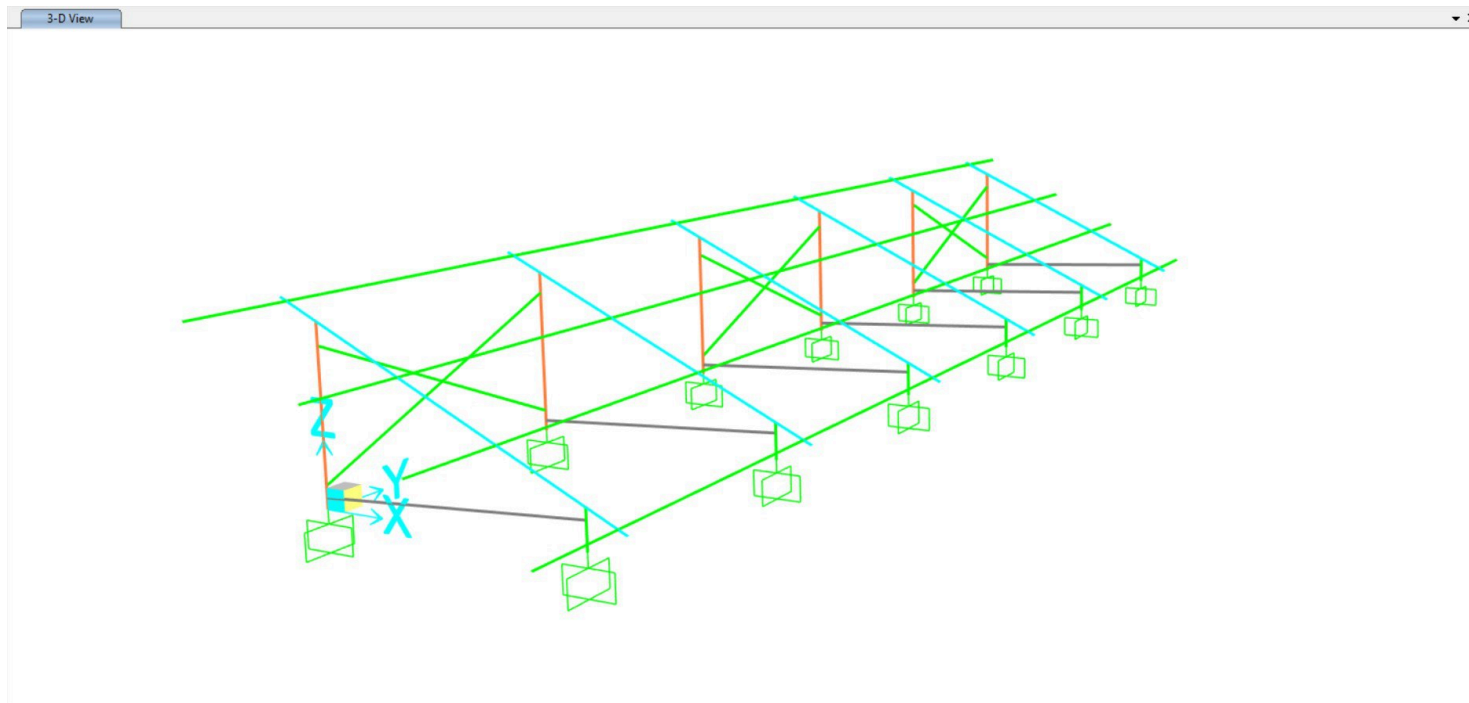
4 Calculated Geometry

Purlin length, cantilever length and rafter length are calculated automatically, taking the ballast dimensions into account together with the system dimensions.

These additional fields are only used when the Concrete Ballast project type is selected. The ballast height directly affects the net post lengths in the SAP2000 model.

17. SAP2000 Modelling Difference

The SAP2000 model is adjusted automatically to the concrete ballast geometry.



1 Post Length Correction

The concrete ballast height entered is automatically deducted from the total geometric length of the posts; posts are modelled at their correct net lengths.

2 Foundation and Support Positions

Post base points are created according to the ballast positions, and support conditions are assigned to the relevant nodes.

3 Analysis-Ready Model

With members, loads and releases defined, the concrete ballast model is ready for analysis and engineering review.

MODELLING DIFFERENCE

Selecting concrete ballast does not only change the drawing; the post geometry and the SAP2000 model are rebuilt automatically according to the ballast height entered.

18. Steel Quantities in a Concrete Ballast Project

The current sections and member lengths of the SAP2000 model, adjusted to the concrete ballast geometry, are carried into the steel quantities.

SolarDesk v2.9.0

Metraj Bağlantı Elemanları

Masa Adedi 3 Panel Gücü (Wp) 580 4 MW 22,57 M 1 JI AKTAR

Çelik Malzeme Detayları

	TV 2	H	B	L	t	b	MATERIAL	Adet / Seha	Toplam Adet	Uzunluk (mm)	Ağırlık (kg/m)	Birim Ağırlık	Siyah Ağı. (Seha)	Beyaz Ağı. (Seha)	Siyah Ağı. (Top)	Beyaz Ağı. (Top)
ARKA KOLON	C	80	45	15	3	176.0	C_F_S355	6	600	1.626	4.14	6.74	40.44	42.06	4,043.79	4,205.55
ÖN KOLON	C	80	45	15	3	176.0	C_F_S355	6	600	390	4.14	1.62	9.71	10.10	970.72	1,009.55
KİRİŞ	C	70	45	15	2	174.0	C_F_S355	6	600	3.586	2.73	9.80	58.78	63.48	5,877.74	6,347.96
AŞIK	C	70	45	15	2	174.0	C_F_S355	4	400	15.132	2.73	41.34	165.35	178.58	16,535.04	17,857.84
ÇAPRAZ	U	40	30	0	2	92.0	C_F_S235	6	600	3.099	1.44	4.48	26.86	29.01	2,685.93	2,900.80
PAYANDA	U	40	30	0	2	92.0	C_F_S235	12	1200	912	1.44	1.32	15.80	17.07	1,580.41	1,706.85
TOPLAM AĞIRLIKLAR													316,94	340,29	31,693,63	34,028,54

Standart (Hard) Shading

1 Import Quantities

Use the “Import Quantities” command to select the current SAP2000 project created for the concrete ballast.

3 Project Scale

Enter the number of tables and the module power to calculate the total weights and the Ton/MW value at project scale.

DISTINCTION

2 Current Member Lengths

Because the ballast height is deducted from the post lengths, post lengths in the steel quantities are shown as net model lengths.

4 Result Check

Check the automatically assigned sections, member counts, lengths and total weights before the final quotation.

This screen shows the quantities of the steel structure. Concrete volume and rebar tonnage are generated separately on the Concrete Ballast calculation screen.

19. Sizing and Reinforcement Calculations

The Concrete Ballast tab automatically calculates the overturning check, minimum ballast length, reinforcement capacity and concrete/rebar quantities.

SolarDesk v2.9.0

Baza Boylandırma

Baza Boyutları

Güvenlik Katsayısı: 1.2

Baza Kütle Kuvveti (kN): 21,4766

Aks Başına Ağırlık (kN): 1,8860

Güvenlik Kontrolü

Minimum Baza Boyu Lmin (m): 3,5590

Kullanılan Baza Boyu L (m): 3,65

✓ Sistem Güvenli

Hesaplanan Değerler

Tributary Area (m²): 12,073

Masa Ağırlığı Kuvveti (kN): 3,3382

Panel Basıncı (kN/m²): 0,1101

Toplam Ağırlık G (kN): 1,8860

Devirici Moment (kNm): 40,7077

Donatı Hesabı

Beton Sınıfı: C25

Donatı Sınıfı: S420

Ana Donatı Çapı (mm): 14

Etriye Çapı (mm): 8

Ana Donatı Adedi: 6

Paspayı (mm): 50

Etriye Aralığı (mm): 200

Ana Donatı Uzunluğu (m): 4,3500

Etriye Büküm Boyu (mm): 10

Donatı Hesap Sonuçları

Etriye Sonuçları

Etriye Sayısı: 19

Kesit Kapasitesi

Toplam Kesit Alanı (mm²): 250,000

Minimum Donatı Alanı (mm²): 500,00

Kullanılan Donatı Alanı (mm²): 923,63

✓ Sistem Güvenli

Moment Kapasitesi Mr (kNm): 73,89

Donatı Metraji

Tek Baza (m³): 0,9125

Tek Masa (m³): 5,4750

Toplam Proje: 547,5000

Toplam Donatı (ton): 27,9540

TR | EN | DE | RO

Standard (Hard) Shading

1 Ballast Sizing

Overturning safety is assessed using the safety factor; the ballast mass force and the weight per axis.

2 Minimum Ballast Length

The required minimum ballast length Lmin is calculated from the overturning moment check. The user sets the final ballast dimensions based on Lmin.

3 Calculated Values

Tributary area, table weight, module pressure, total weight and overturning moment are shown automatically.

4 Reinforcement Inputs

Enter the concrete and reinforcement grades, main bar and stirrup diameters, number of main bars, concrete cover and stirrup spacing.

5 Reinforcement and Moment Check

Minimum reinforcement area, reinforcement area used, number of stirrups and moment capacity Mr are calculated automatically to check the safety of the system.

6 Concrete and Rebar Quantities

Concrete volume and total rebar tonnage are generated automatically for a single ballast, a single table and the whole project.

USER DECISION

The program calculates the minimum requirements and the capacity; the final ballast dimensions and the reinforcement layout to be used are decided by the user.