Foundation Check of Electrical Power Plant CE-1

Peter R. Barrett, M.S.C.E., P.E.
CAE Associates, Inc.
1579 Straits Turnpike, Suite 2B
Middlebury, CT 06762
(203) 758-2914
www.caeai.com

http://www.civilfem.com
Foundation of Electrical Power Plant CE-1

OBJECTIVE:
Detailed study of the stresses transmitted to the soil as well as foundation reinforcement check of the Electrical Power Plant CE-1 in a critical zone.

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The foundation is composed of square footings.

Elements Used:

**SOLID45**: For the structure

**MATRIX27**: Horizontal bracing

**SHELL63**: Ballast module

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Loads

- Self Weight
- Forces and Moments on footings
- Earth Pressure
- Other permanent loads

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Load Combinations Using CivilFEM with ANSYS

- Soil stresses were obtained for the following load cases:
  - LC 1: Total Vertical Loads
  - LC 2: Vertical Loads plus Wind X positive
  - LC 3: Vertical Loads plus Wind X negative
  - LC 4: Vertical Loads plus Wind Y positive
  - LC 5: Vertical Loads plus Wind Y negative

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Results

Soil Stress Distribution

Shear force on bracing beams

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Results

Reinforcement on wall footings

Reinforcement on bracing beams

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Conclusions

• A detailed analysis with CivilFEM with ANSYS enabled us to analyze the global behavior of the structure-foundation system leading to a more reliable solution.

• CivilFEM with ANSYS allowed us to quickly validate the structure that was under construction.

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