Analytic solutions

Juan Gomez and Nicolas Guarin

February 5, 2016

Introduction

This folder contain analytic solutions that can be used to validate the finite element code solids_ISO. In particular it contains the solution to a cantilever beam loaded at the tip reported in the classical elasticity book by Timoshenko and Young. It also contains the Flamant solution for a half-space loaded by a line load and a line moment at the free surface. This solution is described in the textbook Principles of Solid Mechanics by Rowland Richards, Jr. In the implemented version of the solution we have superimposed two line loads and two line moments resembling the case of the foundation loads transmitted by a 1-bay building in the surface. Finally, we have added the solution corresponding to a symmetric self-equilibrated wedge under surface shear tractions.