Sliding wedge with linear springs

REFERENCE	Benchmark Tests for Finite Element Modeling of Contact, Gapping and Sliding, Ref . R0081, NAFEMS, Glasgow, 2001
MODEL FILENAME	Sliding wedge.nfx

Figure 1 shows a sliding wedge on an elastic foundation under the gravity load. The bottom side of the foundation is constrained in all directions. The left side of the wedge is connected to 9 linear 2-node springs in the horizontal direction. Horizontal distances are determined for the four cases of frictional constants and spring stiffness as summarized in Table 1. Geometric nonlinear analyses are carried out to obtain the horizontal displacements, which are then compared with the reference values.

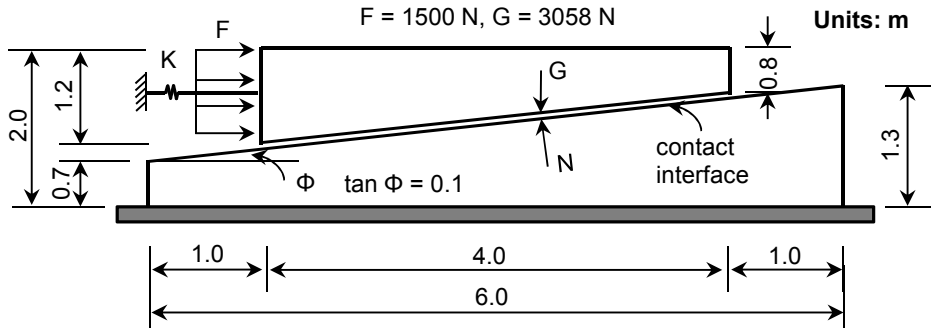

Figure 1. Sliding wedge model

Material data	Young's modulus	$E = 206\ GPa$
	Poisson's ratio	$\nu = 0.3$

Table 1. Horizontal displacements obtained for four different friction coefficients and spring stiffness values

Friction coefficient	Force [*N*]	Spring stiffness [*N/m*]	Horizontal displacement [*m*]	
			Reference	midas NFX
0.0	*1500*	*132.6*	***1.0***	**1.0**
0.1	*1500*	*98.0*	***1.0***	**1.0**
0.2	*1500*	*62.6*	***1.0***	**1.0**
0.3	*1500*	*26.5*	***1.0***	**1.0**