Finite element analysis of interlocking mortarless hollow block masonry prism

Abstract

Interlocking mortarless masonry system has been developed as an alternative system for the conventional bonded masonry. This paper covers the analysis of interlocking mortarless hollow concrete block system subjected to axial compression loads using FEM. An incremental-iterative finite element code is written to analyze the masonry system till failure. The stress-strain relation obtained from test is employed and equivalent uniaxial strain concept is used to account for the material nonlinearity in the compression stress field. The developed program is also capable of simulating the nonlinear progressive contact behaviour (seating effect) of dry joint taking into account the block bed imperfection. The comparison shows a good agreement between the developed FE program and the experimental test results. (C) 2007 Civil-Comp Ltd and Elsevier Ltd. All rights reserved.