You are to design the first-story exterior end-walls for a two story office building. The building has CMU walls, a wood roof and a concrete slab 2nd floor. The building’s plan and elevation dimensions are shown below.

Roof: DL = 20psf, get Lr from IBC 2003

2nd Floor: DL = 5” normal wt concrete slab, get LL from IBC 2003 (neglect corridor load)

WL: 35 psf

8” CMU, ungrouted, unit wt = 110 pcf

f’m = 1500 psi, Type S Portland Cement Mortar

Deliverables:
1. A spreadsheet for distributing loads to walls and piers (see example on website). Put a copy of your spreadsheet (named with your last name) in the “Drop Box” on my website:
2. A summary of designs for both end-walls (out-of-plane) and all end-wall piers (in-plane) in table form (see bottom of pg 3 of spreadsheet cited above) and sketches of elevation view showing grouted cells and rebar sizes and locations.
3. An extensive set of typical calcs (by hand) for one pier. Include:
   - Calculation of P, M and V to top of pier (documents your load distribution spreadsheet, similar to Exam 3.)
   - Check of wall (out-of-plane) and pier (in-plane) failure modes (documents the design calculations, similar to Exams 1 and 2.)