

2.) Categorize the following loads as dead load, live load, snow load, wind load, seismic load, or special load. (see Section 2.2)

- a. Load on an office floor due to filing cabinets, desks, and computers. *Live*
- b. Load on a roof from a permanent air handling unit. *Dead*
- c. Load on stadium bleachers from students jumping up and down during a college football game. *Live*
- d. Load on a building caused by an explosion. *Special-blast*
- e. Weight on a steel beam from a concrete slab that it is supporting. *Dead*
- f. Load experienced by an office building in California as it shakes during an earthquake. *Seismic*
- g. Load on a skyscraper in Chicago on a blustery day causing the building to sway back and forth. *Wind*

- 15.) Part a. uniform load for LRFD  $w_u = 1.2(90) + 1.6(80) = 236$  psf  
 Part b. uniform load for ASD  $w = 90 + 80 = 170$  psf

	a. LRFD	b. ASD
i.	$M_u = \frac{30(0.235)30^2}{8} = 797$ ft-kips	$M_u = \frac{30(0.170)30^2}{8} = 574$ ft-kips
ii.	$M_u = \frac{30(0.235)30^2}{8} = 797$ ft-kips	$M_u = \frac{30(0.170)30^2}{8} = 574$ ft-kips
iii.	$P_u = 15(15)(0.236) = 53.1$ kips	$P_u = 15(15)(0.170) = 38.3$ kips
iv.	$P_u = 30(15)(0.236) = 106$ kips	$P_u = 30(15)(0.170) = 76.5$ kips
v.	$P_u = 30(30)(0.236) = 212$ kips	$P_u = 30(30)(0.170) = 153$ kips