Each lab group will batch a trial mixture of concrete to be used in the construction of small reinforced concrete beams, which will be built and tested later in the semester.

We will investigate three different concrete mixtures:

**Lab Groups 1 & 2:** The mixture will be the one we reviewed for Lab #2.

- Cement: 470 lbs
- Sand: 1523 lbs
- Gravel: 1850 lbs
- Mid-range WR: 19 oz
- Water: 211 lbs

**Lab Groups 3 and 4:** The mixture will be proportioned using Table 9-16, *Design and Control of Concrete Mixtures* (attached).

**Lab Groups 5 & 6:** The mixture will be proportioned with your spreadsheet that was used in CEE 316. The target strength water cement ratio, \( W/C \) will be 0.45

Weights of materials that will be used for batching the concrete are:

**Sand:**
- wet unit weight = 1006 g
- dry unit weight = 1261 g
- bin weight = 261 g

**Gravel:**
- wet unit weight = 1001 g
- dry unit weight = 1256 g
- bin weight = 259 g

Each group should calculate the weights of cement, sand, gravel, mid-range WR, and water per 1 cubic foot for their assigned mixture proportioning method.