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# By submitting this assignment, all team members agree to the
following:

# "Aggies do not lie, cheat, or steal, or tolerate those who do"

# "We have not given or received any unauthorized aid on this
assignment"
#
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# Section:        021
# Assignment:     Lab02 - 3
# Date:           6 September 2018
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Instructions for concrete steps –

- Ensure all lab technicians are certified
- check cylindrical specimens
- insure specimens are 6x12 inches or 4x8 inches if specified
- check the nominal maximum size of the coarse aggregate used in the concrete
- check diameter of cylinder is at least three times the nominal maximum size of the coarse aggregate used in the concrete
- record the mass of the specimen
- cap cylinders with sulfur mortar or neoprene pad caps preferably 1 day prior to testing
- Only use neoprene caps on specimens up to 12,000 psi
- Replace pads if there is excessive wear
- Do not allow the cylinders to dry out prior to testing
- Measure the diameter of the cylinder in two locations
- Take these measurements at right angles to each other at mid height of the specimen
- Average these measurements to calculate the cross sectional area
- Do not test the cylinder if the measurements differ by more than 2%
- Do not depart the cylinders from the perpendicularity with the cylinder axis by more than 0.5 degrees
- Be sure the ends are plane to within .002 inches
- Test at least two cylinders of the same age
- Center the cylinders in the compression-testing machine
- Load the cylinders until complete failure
- The loading rate of the hydraulic machine should be maintained within 20 to 50 psi/s during the latter half of the loading phase
- Record the type of break of each cylinder
- Calculate the concrete strength by dividing the maximum load at failure by the average cross sectional area
- Record the average strength of the two cylinders
- Record the date the cylinders were received at the lab
- Record the test date
- Record the specimen identification
- Record the cylinder diameter

- Record the test age
- Record the maximum load applied
- Record the compressive strength
- Record the type of fracture
- Record any defects of the cylinders and/ or caps
- If the mass of the cylinders were recorded, take note of them
- Be sure the the range between companion cylinders from the same set and tested at the same age are on average 2-3% on average strength
- Evaluate and rectify testing procedures if the strength varies by more than 8%
- Be sure results from different labs on the same concrete samples do not differ by more than 13% on average
- If the cylinders break at a strength below f'cevaluate the cylinders for obvious problems
- Hold these test cylinders for later examinations
- Forward the results to the concrete producer
- Forward the results to the contractor
- Forward the results to the owner’s representative

Variable names for concrete lab

1. size_cylinder=
2. diameter=
3. mass=
4. time=
5. pressure=
6. angle=
7. average=
8. cross_area=
9. load_weight=
10. concrete_ strength=
11. max_load=
12. avg_cross_area=
13. length_to_diameter=
14. age=
15. avg_strength=
16. date_rec=

17. date_test=
18. specimen_id=
19. type_frac=
20. defects=
21. deviations=
22. range=
23. result=
24. f'c=
25. require_strength=
26. age_strength=