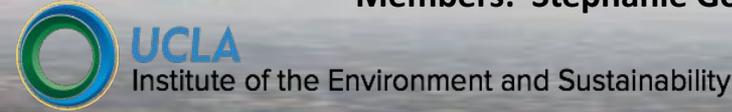# Assessing Indoor Air Quality (PM 2.5) in UCLA Recreation Facilities

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UCLA Institute of the Environment and Sustainability

UCLA Sustainability Action Research

INTRODUCTION

Mission: To promote human health, clean air, and a healthy environment for UCLA students and community members who utilize the John Wooden and Bruin Fitness (B-Fit) Recreation Centers


➤ Air quality is an important environmental health issue that few people are aware of. Poor air quality is a major contributor to respiratory conditions such as asthma and allergies. Additionally, with the average person spending an estimated 90% of their time indoors, limiting dangerous air pollutants that enter work and recreational spaces should be priority for improving human health. Particulate Matter 2.5 (PM2.5) is one of the main pollutants that impacts indoor air quality, and is therefore the focus of our project.

OBJECTIVES

Our goal was to assess whether the air quality (PM2.5) in all of the tested rooms meets healthy standards according to the Environmental Protection Agency (EPA).

➤ Measure PM 2.5 levels in 5 locations in Wooden and 4 locations at B-Fit (weight room, cardio room, and outdoor measurements)
➤ Conduct a focus group to gain diverse perspectives for recommendations and future research
➤ Conduct an audit of cleaning supplies to recommend environmentally-friendly, healthy alternatives

METHODOLOGY

Off-Peak and On-Peak times:
➤ Chose 26 random days from room count data of 2016, and found the peak (5pm-6pm) and off-peak hours (7am-8am) for gym usage at Wooden

Testing Outside:
➤ We hypothesized that outdoor air quality can be associated with indoor air quality

Testing Inside:
➤ We wanted to test the most heavily used rooms in the facility
➤ Used room count data to determine that the weight room and the cardio rooms had the highest usage

Air Sampling:
➤ We collected 3-minute air samples in each testing location (see location areas below)
➤ Collected air samples that totaled 11 hours in B-fit and 14 hours in Wooden

Focus Group:
➤ After determining that air quality was not an issue in any of the rooms, we conducted a focus group to gain insight on ways we can improve the environment & sustainability at Wooden and to develop solid recommendations for future research at the facility.

3 sampling locations in Wooden Weight Room

1 sampling location in Wooden Cardio room

1 sampling location in B-Fit back weight room

1 sampling location in B-Fit front weight room

1 sampling location in B-Fit Cardio room

Tour of air handlers at Wooden w/ building engineer

Tour of B-Fit with UCLA Housing building engineers
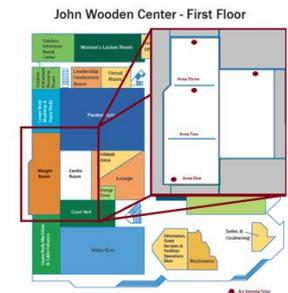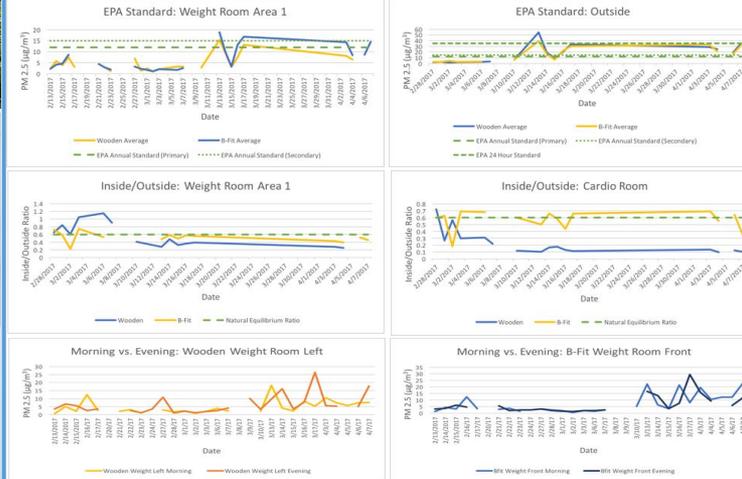

John Wooden Center - First Floor
Air quality testing sites at Wooden (red circles)

Left Image: Dylos Air Quality Monitor
Right Image: Focus Group

RESULTS

With the exception of a few outliers, PM 2.5 levels at both Wooden and B-Fit are below the EPA standards for healthy air quality

CONCLUSION/FUTURE DIRECTIONS

No underlying issues with air quality leading to possible health effects.

➤ Our results show no statistical significance between measured concentrations of PM2.5 and the EPA recommended daily and annual levels.

Future Directions
➤ Advocate for the reduction of air exchanges in Wooden to save energy while maintaining healthy air quality levels, especially during periods of minimal building use
➤ Further outreach and education about the importance of air quality
➤ For our second part of the project, we will be conducting an audit of the most frequently used cleaning products at Wooden. Our goal is to create a guide with a list of recommended alternatives which would provide a solid platform for health-conscious and sustainable cleaning product purchasing.

AKNOWLEDGEMENTS