EGR 353 Green Architectural Engineering

Project 2
LEED Platinum Building Design & Construction ("BD&C")
of a new School for Elizabethtown College

J Wunderlich PhD
Clarification: **4/17/24**

On the Eastern part of the Elizabethtown College campus from the baseball stadium to the far side of the solar collector field, design **one building** for your Project 1 New School for the college; For example, a School of International Studies, a Law School, a Medical School, an Architecture School, an Agricultural School, a School of Sustainability, etc.

Create **drawings** *(using Revit, Sketch-up, free-hand-sketches),* ***and/or*** **physical models**, ***and/or*** **any way you choose** to deliver high-quality professional works, plus write a **Paper**, plus create a **Video** (5 minutes MAX!) that includes all of the following:

A. In Paper, on your Drawings and/or Models, and in your Video, create a quick summary of your choice of highlights from your **LEED Platinum Neighborhood Development ("ND") Project 1, and Japanese garden; (e.g., like all your building footprints and concepts)**

B. In your Paper, on your Drawings and/or Models, and in your Video, create one specific Architectural "Detail" relating to each of these 12 lectures:

1. **Text-CH 3 A&E THERMODYNAMICS, AIR QUALITY & HEALTH"** PDF PPTX-w/audio MP4 YouTube
   a. Pollution: PM2.5, OZONE, Outdoor-Air-Quality, ASBESTOS, MOLD, Volatile-Organic-Compounds (VOC's)**;** One solution: Energy-Recovery-Ventilator
   b. **STANDARDS: ASHRAE** (U.S, international), **ANSI** (U.S.,Int'l), **ISO**(Int'l), **LEED** (~Int'l), **AIA** (U.S.), **CSI** (U.S.), **EPA** (U.S.), **DEP** (PA), **OSHA** (U.S.), **CDC** (U.S.), **WHO** (Int'l)
      i. **ASHRAE** standard 52.2 versus ISO 16890 for rating dust collector filter efficiency
      ii. ANSI / **ASHRAE** Standard 62.1-2022, Ventilation and Acceptable **Indoor Air Quality** (**IAQ**)
      iii. ANSI / **ASHRAE** Standard 62.2-2022, Ventilation and Acceptable Indoor Air Quality in Residential
   c. 2020 Indoor Air Quality Webinar by a DESIGN-BUILD HVAC Contractor" (part 1)
2. **Text-CH 5 A&E THERMAL COMFORT & HEALTH** PDF PPTX-w/audio MP4 YouTube
   a. **STANDARD:** ANSI / **ASHRAE** standard 55-2017, Thermal Environmental Conditions for Human Occupancy
3. **Text-CH 4 & 10 CLIMATE & SITE DESIGN** PDF PPTX MP4 YouTube
4. **Text-CH 6 SOLAR GEOMETRY** PDF PPTX MP4 YouTube
5. **Text-CH 7 PASSIVE SOLAR HEATING** PDF PPTX MP4 YouTube
6. **Text-CH 17 ACTIVE SOLAR HEATING** PPTX-w/audio MP4 PDF
7. **Text-CH 9 PASSIVE COOLING (and SHADING)** PDF PPTX MP4:(Part-1, Part-2) YouTube
8. **Text-CH 11, 12, and 16 NATURAL & MAN-MADE LIGHTING** PDF PPTX-w/audio MP4 YouTube
9. ***"Intelligent Natural Ventilation with Automated Windows and Controls"*** **by Imola Frei,** LEED AP (BD +C), RESET Air AP, Fitwel Ambassador
10. **Text-CH 13 BUILDING THERMAL ENVELOPE** PDF PPTX
    a. **Architectural SHELL / ENVELOPE A&E** MP4 PPTX-audio YouTube PDF
11. **Text-CH 18 HVAC TECHNIQUES** PDF PPTX
12. **Dr. K Roy ACOUSTICAL A&E guest lecture 2017** PDF PPTX LEED credits PDF

C. In your Paper, on your Drawings and/or Models, in your Video, and **on a** LEED v4 BD_C **NEW CONSTRUCTION AND MAJOR RENOVATION** CHECKSHEET.pdf, identify your specific ideas to create a LEED Platinum Building to LEED version 4.1 standards.
   - LEED website: https://www.usgbc.org
   - USGBC database of projects: https://www.usgbc.org/projects

D. Present your Video (OR an oral presentation using your media and artworks) to Judges on due date, in class, live, face-to-face, and then answer their questions.

UPLOAD ONLY TWO THINGS TO CANVAS: Your **5-Minute (MAX!) Video**, and **One Single Word document** with all Drawings, Photos, LEED Check-sheet, etc, embedded and clearly identified in the narrative of a well-written paper.

2011 update to 1999 Elizabethtown College Comprehensive Plan