

Info Sheet for Judges

EGR 353 Green Architectural Engineering **FINAL SEMESTER PROJECT**

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

PRELIMINARY SITE ANALYSIS PROJECT #1 earlier in course:

Etown Eastern-Campus Site Analysis

Assume Elizabethtown College is soon to become classified as a University; and this is some of the preliminary site analysis for creating a new College within the University. This is a group project with groups

Harrisburg (State Capitol)

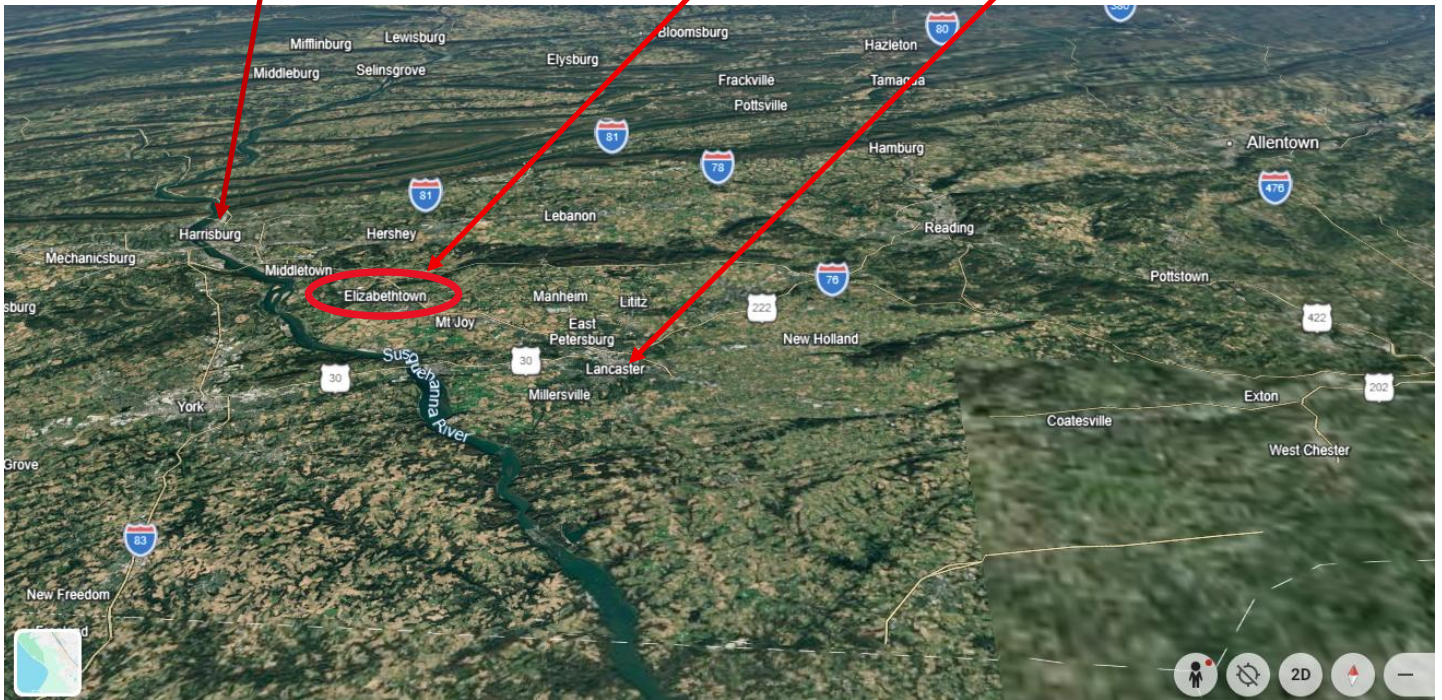
Population= ~50,000

Elizabethtown

Population= ~12,000

Lancaster

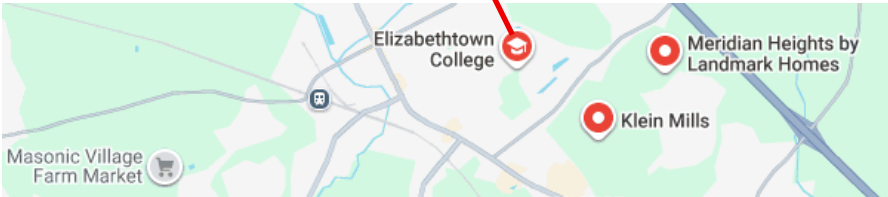
Population= ~60,000





New Development

- 209 55+ Single-family Homes
- 294 Townhouses
- 280 Apartments



The large new housing developments located just south of Elizabethtown College are [Klein Mills](#) and [Meridian Heights](#). These projects are situated on approximately 130 acres of former farmland near the intersection of **Campus Road** and **Conifer Drive**.

The developments consist of several distinct sections:



[Klein Mills Housing development](#)

A neighborhood of **209 single-family homes** restricted to active adults aged 55 and older. Built by [Ryan Homes](#), the community features ranch-style floor plans and amenities like a private clubhouse, outdoor pool, and pickleball courts.

The Henry At Klein Mills

A brand-new **apartment complex** within the same master plan featuring **280 market-rate units** across 11 buildings. Managed by Greystar, it began pre-leasing in late 2025 and offers one- to three-bedroom apartments with high-end amenities like EV charging and a heated pool.



[Meridian Heights by Landmark Homes](#)

A townhome community developed by [Landmark Homes](#) located northeast of Campus Road. Upon completion, it is slated to include **294 townhouses** and **80 apartments**.

SITE for a new College for Elizabethtown University

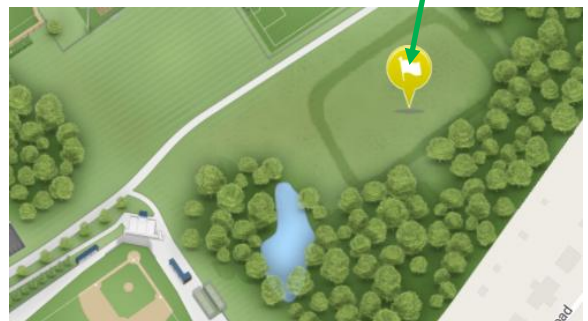
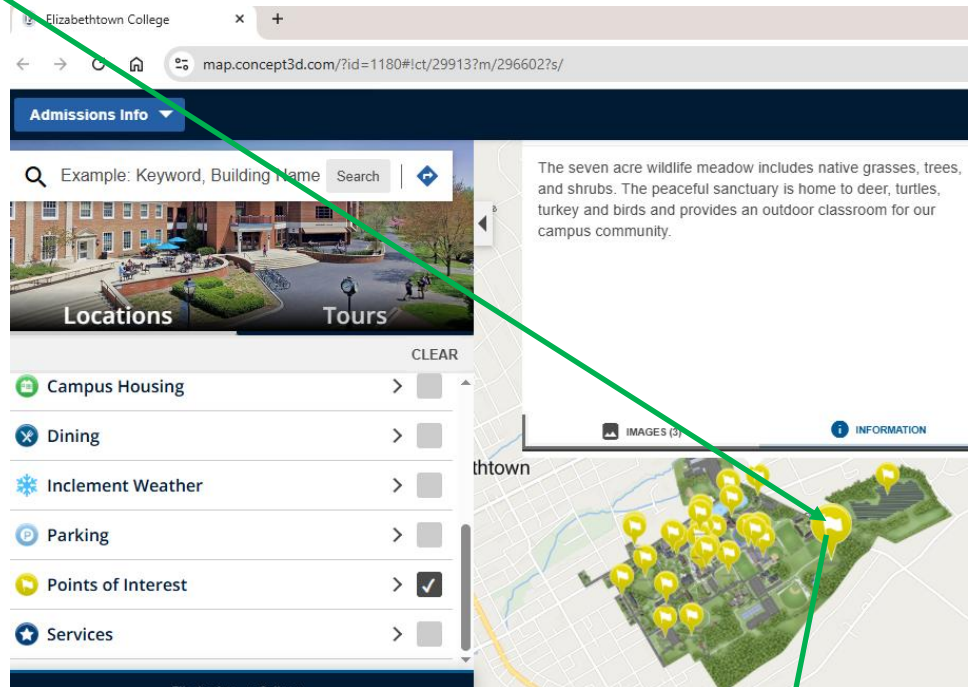
Don't disturb Photovoltaic Array, however you can build on one or two of the soccer practice fields and tear down or remodel/expand the three existing houses



Plan around this preserved Wildlife Meadow.

You may build close to it or even integrate it into your design; see: <https://map.concept3d.com/?id=11800#!ct/29913?m/296602?s/>

See:



Pick Teams (of three, FOUR, or FIVE) ASAP [with at least one member already proficient at, or willing to become proficient at, REVIT software] (see more below); Only one person is to upload this "Etown Eastern-Campus Site Analysis" assignment. I will assign a Team Grade (and from that, I will record official teams in canvas for the two LEED projects to follow)

Reflecting on the following:

- "Text-CH4&10 CLIMATE & SITE DESIGN" [PDF](#) [PPTX](#) [MP4](#) [YouTube](#)
- MASTER PLANS: [Etown College](#), [Etown Borough](#), [Lancaster County](#) [MP4](#) [YouTube](#)

Walk around the entire perimeter of the **Eastern part of campus, from the baseball stadium to the far side of the solar collector field** (see "SITE" ABOVE). Then, take 10 photos of site elements within that part of the campus that you think are the most significant to the potential design of new buildings for a new College for Elizabethtown University; you must pick one of these three names for your new College:

1. **Elizabethtown University College of Architecture, Art, and Sustainability**, including a new theater open to the public for movies, live music, and theatrical events; and a new relatively large architecture studio capable of facilitating a Masters of Architecture program.
2. **Elizabethtown University College of Agriculture**, including integration of our present academic programs of environmental sciences and Environmental & Civil engineering without disrupting or relocating the present facilities and teaching within the biology and engineering departments, plus a new program in **Agriculture**, with teaching and research facilities, gardens, and buildings for experimental agriculture and farm-animal development.
3. **Elizabethtown University College of Health** including our present academic programs, without disrupting or relocating the present facilities and teaching, of Physician Assistants, Occupational Therapy, Psychology and Sports Science plus relocating our present health services and adding a five-bed inpatient infirmary and adding a new program and facilities in **Geriatric Care** in affiliation with Masonic homes of Elizabethtown.

Also, no matter which college you choose to design, create a small mini-market like a Wawa or 7-11, to be open to the public.

Consider Topography, Views, Sun, Wind, Seasonal variations, Historic preservation, Community outreach, Service, Financial incentives, Potential partnerships, Potential further campus expansion, Athletics, Spiritual uses, Meditative spaces, "Mind, Body, & Spirit" multi-purposes, Compliments to the "**Vernacular**" of the College, Town, or County, New walking or biking paths, Parking, Water features (existing and potential), etc.

Every photo can have a different theme, if you would like. Label and number each of the photos with some indication of where the photo was taken (i.e., in the caption below the photo).

Indicate the number location of each photo on a **site map** (on a sketch, Arial image from google maps/earth, or on master plan drawing)

In addition to the caption below each photo, write a short **narrative** (essay) that describes why you believe each of your 10 photos show important things. Refer to each photo by number in your narrative, and say something specific about each photo.

All of your photo's, drawings, and narrative need to be in **one uploaded file**.

GRADING: 10 points for each photo and it's caption, 25 points for site map (with photo numbers), 25 points for Narrative Essay

At least one person in your group must be, or be willing to become, proficient in the most recent version of Revit software ... for the upcoming follow-up LEED site design and LEED final-buildings project assignments for the semester (but REVIT is not required for this assignment):

REVIT:

- a. In-class short video's: [Architecture](#) [Solar](#)
- b. [SWEETS CATALOG](#)
- c. Previous Wunderlich Tutorials: [Intro](#) [Building Levels & Views](#) [Walls](#) [Library\(A,B\)](#)
- d. [AUTODESK OFFICIAL TUTORIALS \(HOMEWORK\)](#)
- e. Out of class videos: [Structural](#) [HVAC](#) [Plumbing](#) [Electrical](#) [Illumination](#) [Energy](#) [Acoustics](#), [REVIT vs. SKETCHUP TUTORIAL](#) [MP4](#) [YouTube](#) – and Past & Present Etown Campus into Virtual Reality ([MP4](#) [YouTube](#)) by [JJWIV](#)

PRELIMINARY PROJECT #2 earlier in course:

LEED Project 1 LEED Platinum Neighborhood Development ("ND") of a new College for Elizabethtown University

Reflecting on your last assignment "Etown Eastern Campus Site Analysis", show footprints of new buildings (at least FIVE for groups of three, SIX for groups of four, and SEVEN for groups five), plus roads, walking paths, parking, landscaping (including any large specimen trees to be preserved), natural woodlands, "wetlands", and water features for your new College that your group has chosen to design for Elizabethtown University.

Create Visuals (using at least some Revit, plus Sketch-up, free-hand-sketches, physical models, or any way you choose) to deliver high-quality professional works, plus write a Paper, ... plus create a VIDEO (5 minutes MAX!) to possibly be shown to external judges.

Both the paper and video must include all of the following:

- Reference MASTER PLANS: [Etown College](#), [Etown Borough](#), [Lancaster County](#)
 - See attached Etown Master Plan: 2011 & 1999 site plans, list of 1999 Plan goals, and part of 1999 Campus Assessment and discuss how you will be complimenting the present Vernacular of the College and Region (both Culturally, and Architecturally), and/or how you are intentionally deviating from the vernacular to make a statement or provide a new purpose for our College Brand
- Address most of the major topics discussed in:
 - "Text-CH4&10 CLIMATE & SITE DESIGN" PDF PPTX MP4 YouTube
- Identify Solar Paths discussed in:
 - "Text-CH6 SOLAR GEOMETRY" PDF PPTX

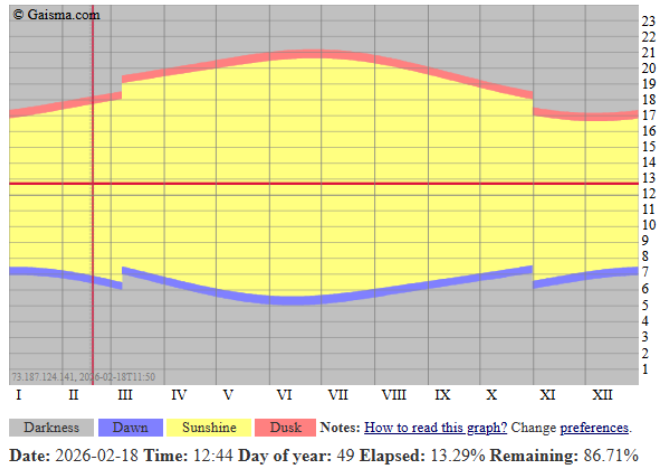
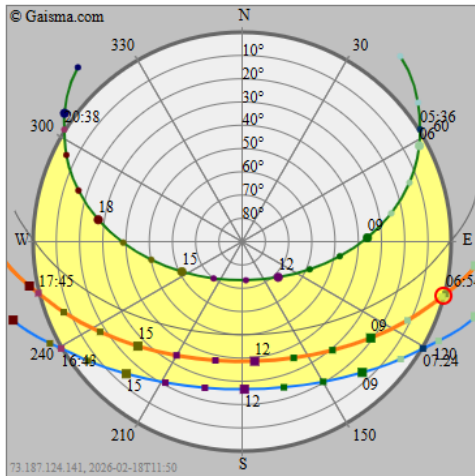
.... using information like from here: <https://www.gaisma.com/en/location/lancastr-pennsylvania.html>

like this:



Lancaster, Pennsylvania, United States - Sun path diagram

Lancaster, Pennsylvania, United States - Sunrise, sunset, dawn and dusk times, graph



... and from here: <https://www.suncalc.org/#/40.1515,-76.606,11/2026.02.18/07:00/1/3>, this:

Computation path of the sun for:
Elizabethtown, Pennsylvania
18 Feb 2026 07:00 UTC-5 | LIVE

Solar data for the selected location

Dawn:	06:27:47
Sunrise:	06:55:07
Culmination:	12:40:17
Sunset:	17:46:02
Dusk:	18:13:23
Daylight duration:	10h50m55s
Distance (km):	147,863,697
Altitude:	0.491°
Azimuth:	183.17°
Shadow length (m):	117.06
at an object level (m):	

Reverse calculation

Geodata for the selected location

More solar data & Photovoltaic

JDE:	2461090.0008699996
DeltaT:	75.2s
GST:	21h 51m 51.54s
GMST:	3569 31' 32"
Declination:	-11.528°
RightAscension:	22h 7m 45.41s
TrueEquinox:	20.03.2026 18:45 EDT
JanSolstic:	21.06.2026 04:25 EDT
SepEquinox:	22.09.2026 20:05 EDT
DecSolstic:	21.12.2026 15:49 EST

— Photovoltaic —

Solar constant:	1393.3 W/m²
Air mass:	31.471
Irradiance:	66 W/m²

4) On a LEED ND Check-sheet SCORECARD ([LEED v4 ND PLAN CHECKSHEET.pdf](#)), identify your specific ideas to create a LEED Platinum Neighborhood Development ("ND") to LEED version 4.1 standards.

- LEED website: <https://www.usgbc.org>
- USGBC database of projects: <https://www.usgbc.org/projects>

On the far right of each SCORECARD category is the maximum number of points, or it just says "Mandatory"

Then you do this in each of the columns:

- **Column 1 Prerequisites (Mandatory):** You must enter a "Y" to even be eligible for certification.
- **Column 1, GREEN (Yes/High Probability):** Enter the points for credits your team is committed to achieving.
- **Column 2, YELLOW (Maybe):** Use this for "stretch" goals that the project *might* achieve but are not yet guaranteed.
- **Column 3, ORANGE (No/N.A.):** Mark these if the credit is definitely out of scope for the project.

And of course in your narrative and your video you should be defending what you have entered.

UPLOAD ONLY TWO THINGS TO CANVAS:

1. Your **5-Minute (MAX!) Video (MP4)**
2. **One Single Word document** (not google docs) with all Images, LEED Check-sheet, etc., embedded and clearly identified in the narrative of a well-written paper.

REVIT:

- In-class short video's: [Architecture](#) [Solar](#)
- [SWEETS CATALOG](#)
- Previous Wunderlich Tutorials: [Intro](#) [Building Levels & Views](#) [Walls](#) [Library\(A,B\)](#)
- [AUTODESK OFFICIAL TUTORIALS \(HOMEWORK\)](#)
- Out of class videos: [Structural](#) [HVAC](#) [Plumbing](#) [Electrical](#) [Illumination](#) [Energy](#) [Acoustics](#), [REVIT vs. SKETCHUP TUTORIAL MP4 YouTube](#) – and [Past & Present Etown Campus into Virtual Reality \(MP4 YouTube\)](#) by JJWIV

2011 update to 1999 Elizabethtown College Comprehensive Plan



YOU ARE JUDGING THIS:

EGR 353 Green Architectural Engineering
LEED Project 2
LEED Platinum Building Design & Construction ("BD&C")
of a new College for Elizabethtown University

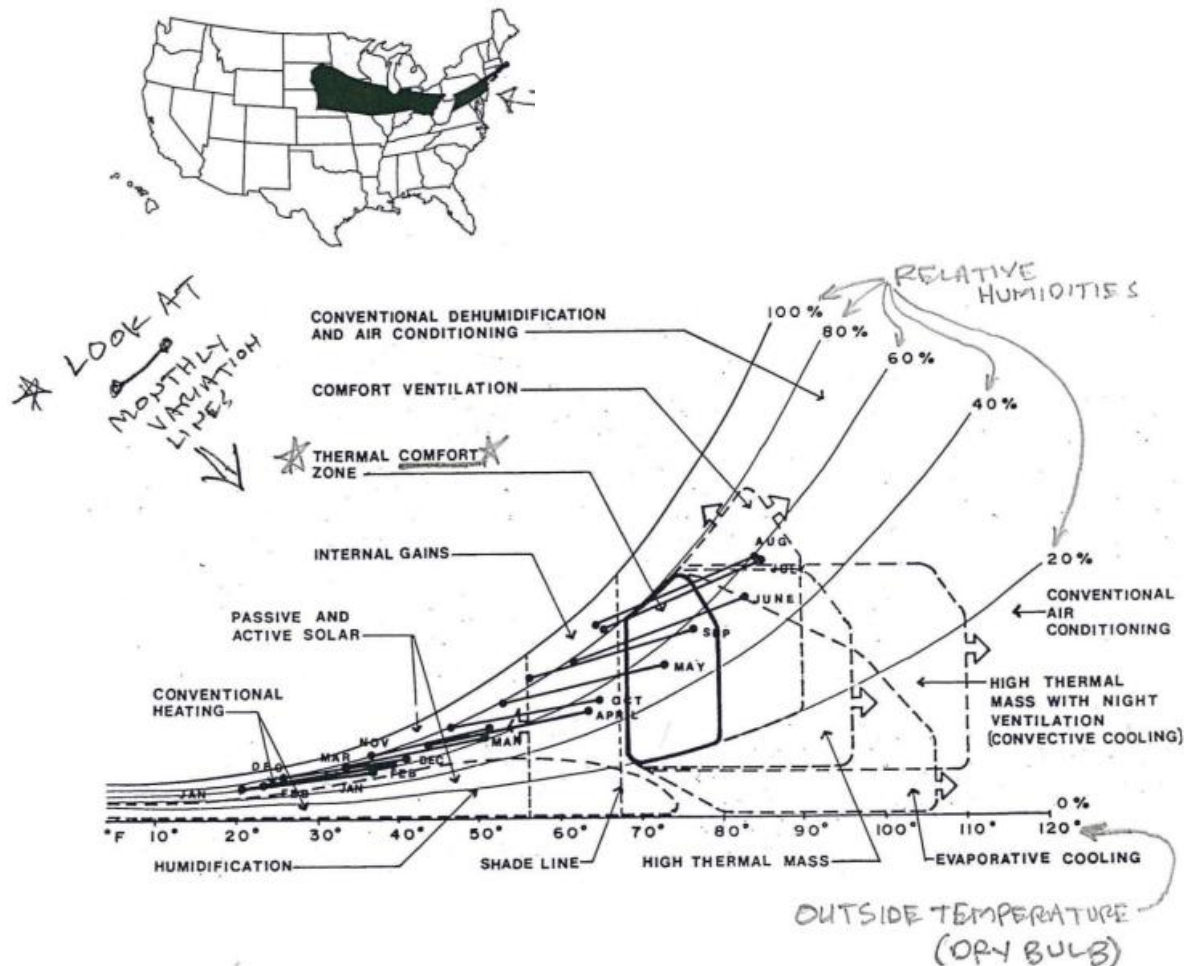
Reflecting on your assignment:

"Project 1 LEED Platinum Neighborhood Development ("ND") of a new College for Elizabethtown University",
Design **THREE** for groups of three, **FOUR** for groups of four, and **FIVE** for groups of five, of the new
buildings (using at least some Revit, plus Sketch-up, free-hand-sketches, physical models,
or any way you choose) to **deliver high-quality professional works**,
... plus write a **PAPER** showing your designs,
... plus create a **VIDEO** (5 minutes MAX!) to possibly be shown to external judges.

Both the paper and the video must include all of the following:

- The site plan from your "Project 1 LEED Platinum Neighborhood Development ("ND") of a new College for Elizabethtown University"
- Three (or four for groups of four, or five our groups of five) complete building designs visualized from their exteriors (Optional to also visualize interiors). Each member must contribute to the architectural modeling, even if just supplementing extra small built model(s).
- For each of your Three (or four for groups of four, or five our groups of five) buildings, show a different psychometric chart based on this figure below, with specified variations in the comfort zone, as needed, sketched on top of this figure -- or you may completely redraw the psychometric chart if you wish:

CLIMATE REGION 3



- D. For each of your **three (or four for groups of four, or five our groups of five)** buildings, design for, and discuss in your narrative, how the differences in sunlight throughout the year specifically effects both the natural day-lighting within, and the thermodynamics of, your design, referencing content from these lectures:

Text-CH 7 PASSIVE SOLAR HEATING [PDF](#) [PPTX](#)

Text-CH 17 ACTIVE SOLAR HEATING [PPTX-w/audio](#) [MP4](#) [PDF](#)

Text-CH 9 PASSIVE COOLING (and SHADING) [PDF](#) [PPTX](#) [MP4:\(Part-1, Part-2\)](#) [YouTube](#)

Text-CH 11, 12, and 16 NATURAL & MAN-MADE LIGHTING [PDF](#) [PPTX-w/audio](#) [MP4](#) [YouTube](#)

- E. One specific Architectural "Detail" (i.e., a zoomed-in Working-Drawing type visual ... possibly as a section-view or isometric) relating to each of these 12 lectures that you will specify for one of your buildings (state which building) -- you may want to reference "[SWEETS Catalog](#)" and "[AIA Graphics Standards](#)" -- and you may use AI)

- Text-CH 3 A&E THERMODYNAMICS, AIR QUALITY & HEALTH" [PDF](#) [PPTX-w/audio](#) [MP4](#) [YouTube](#)
Pollution: [PM2.5](#), [OZONE](#), [Outdoor-Air-Quality](#), [ASBESTOS](#), [MOLD](#), [Volatile-Organic-Compounds \(VOC's\)](#); One solution: [Energy-Recovery-Ventilator](#)
- 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)
 - [ASHRAE standard 52.2 versus ISO 16890](#) for rating dust collector filter efficiency
 - [ANSI / ASHRAE Standard 62.1-2022](#), Ventilation and Acceptable **Indoor Air Quality (IAQ)**
 - [ANSI / ASHRAE Standard 62.2-2022](#), Ventilation and Acceptable Indoor Air Quality in Residential
 - [2020 Indoor Air Quality Webinar by a DESIGN-BUILD HVAC Contractor](#)" (part 1)
- Text-CH 5 A&E THERMAL COMFORT & HEALTH [PDF](#) [PPTX-w/audio](#) [MP4](#) [YouTube](#)
 - STANDARD: [ANSI / ASHRAE standard 55-2017](#), Thermal Environmental Conditions for Human Occupancy
- Text-CH 4 & 10 CLIMATE & SITE DESIGN [PDF](#) [PPTX](#) [MP4](#) [YouTube](#)
- Text-CH 6 SOLAR GEOMETRY [PDF](#) [PPTX](#) [MP4](#) [YouTube](#)
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- Text-CH 11, 12, and 16 NATURAL & MAN-MADE LIGHTING [PDF](#) [PPTX-w/audio](#) [MP4](#) [YouTube](#)
- "[Intelligent Natural Ventilation with Automated Windows and Controls](#)" by [Imola Frei](#), LEED AP (BD +C), RESET Air AP, Fitwel Ambassador [PDF](#)
- Text-CH 13 BUILDING THERMAL ENVELOPE [PDF](#) [PPTX](#)
- Architectural SHELL / ENVELOPE A&E [MP4](#) [PPTX-audio](#) [YouTube](#) [PDF](#)
- Text-CH 18 HVAC TECHNIQUES [PDF](#) [PPTX](#)
- Dr. K Roy ACOUSTICAL A&E guest lecture 2017 [PDF](#) [PPTX](#) LEED credits [PDF](#)

- D. On a [LEED v4 BD_C NEW CONSTRUCTION AND MAJOR RENOVATION CHECKSHEET.pdf](#) SCORECARD identify your specific ideas to create **at least one** LEED Platinum Building to LEED version 4.1 standards.

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And of course in your narrative and your video you should be defending what you have entered.

- E. Possibly (TBA) present your Video to Judges on a date TBA, in class, live, face-to-face, and then answer their questions.

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