Elizabethtown College Architecture of Wellness and Sustainability

Joseph T Wunderlich PhD
Design & Technology-Transfer Studio Director
Associate Professor and Associate Chair of Engineering
Program Coordinator for Computer Engineering Major and Architectural Studies Minor

Sustainable Design
option for BS Engineering
Elizabethtown College, PA

Green Engineering:

EGR 275
ENVIRONMENTAL SITE ENGINEERING & DESIGN

EGR 276
SUSTAINABLE RESOURCE ENGINEERING & DESIGN

EGR 321
THERMODYNAMICS

EGR 365
FLUID MECHANICS & HYDROLOGY

EGR 343
GREEN ARCHITECTURAL ENGINEERING

EGR/CS 434
GREEN ROBOTICS, AUTOMATION, and MACHINE INTELLIGENCE

EGR 470 **ENGINEERING INTERNSHIP (must be green)** or
EGR 370 **ENGINEERING SPECIAL TOPICS (must be green)** or
EGR 280 **ENGRINEERING RESEARCH (must be green)**

Special Core:

ART105
DRAWING

SO 204
POULATION AND GLOBAL ISSUES

Architectural Studies Minor, Elizabethtown College, PA

Required Classes (23 credits)

	Credits
ART 105 - Drawing I (CE CORE)	4
ART 280 - World Architecture (NCH CORE)	4
ART 210 - Drawing II ***OR***	4
ART 120 - CE Sculpture (CE CORE)	4
EGR 343 - Green Architectural Engineering	3
ART/EGR 471 - Internship in Architecture ***OR***	4
ART/EGR 481 - Independent Study in Architecture ***OR***	4
ART/EGR 371 - Special Topics in Architecture ***OR***	4
EGR 280 (future number change to 281) - Engineering Research in Architecture ***OR***	4
EGR 276 - Sustainable Resource Engineering & Design ***AND***	3
EGR 396 - Spring Seminar	1
ART/EGR499A Architecture Design Studio	2
ART/EGR499B Architecture Design Studio	2

Elizabethtown College Sustainability Committee

http://users.etown.edu/w/wunderjt/Sustainability_Committee_Academics_Report_version_1_5.pdf

A. SUSTAINABILITY-RELATED COURSES

A.1 Art

ART 280 – World Architecture
ART 471 – Internship in Architecture
ART 499A&B – Architectural Design Studios I & II

A.2 Biology/Environmental Science *(Environmental science courses are within BIO prefix)*

BIO 103 – Living with the Environment
BIO/EN 170 – Ecology in Short Fiction
BIO 112 – Principles of Evolution, Ecology and Diversity of Life
BIO 225 – Geographic Information Systems
BIO 235 – General Microbiology
BIO 313 – General Ecology
BIO 317 – Aquatic Ecology
BIO 318 – Marine Biology
BIO 320 – Conservation Biology
BIO 335 – Microbial Ecology
BIO 362 – Ecotoxicology

A.3 Business

BA 265 – Principles of Management *(required for all business majors)*
BA 372 – Sustainable Marketing *(elective)*

A.4 Communications

COM 485 – Senior Seminar *(two Etown Sustainability videos produced to-date)*

A.5 Economics

EC 102 – Principles of Microeconomics *(required for all business majors)*
EC 370 – Environmental Economics *(elective)*

A.6 Education

ED 325 – Methods for teaching Science and Health in Early Childhood
ED 326 – Methods for teaching Science and Health in Elementary/Middle Level

A.7 Engineering

EGR 275 - Environmental Site Engineering & Design
EGR 276 - Sustainable Resource Engineering & Design
EGR 280 - Engineering Research in Sustainable Design
EGR 280 - Engineering Research in Architecture
EGR 321 - Thermodynamics
EGR 365 - Fluid Mechanics and Hydrology
EGR 370 - Introduction to Environmental Engineering
EGR380 - Water & Wastewater Design
EGR 343 - Green Architectural Engineering
EGR 434 - Green Robotics, Automation, and Machine Intelligence
EGR 471 - Internship in Architecture
EGR 491/492 - Senior Design Project
EGR 499A&B - Architectural Design Studios I & II

A.8 Earth Science

ES 113 - NPS Earth in Space: Evolution of a Planet
ES 114 - NPS Geosystems: Landscapes, Oceans and Atmosphere
ES 117 - NPS Climate Change and the Fate of Civilization
ES 216 - Physical Geography

A..8 History

HI 208 - Technology and Values in American Experience

A.9 Philosophy

PH 255D - Advanced Ethics: Environmental

A.10 Peace and Conflict Studies

A.11 Political Science

PS 361 – Public Administration

A.12 Religion

REL 151 - Life Meaning and Purposeful Work
REL 291 - Indic Religions: Hinduism, Jainism, and Sikhism
REL 292 - Buddhism
REL/SOC 364 - Amish Society

A.13 Sociology and Anthropology

SSC 204 - Population and Global Issues

B. SUSTAINABILITY-RELATED PROGRAMS

B.1 Architectural Studies Minor *(including integrated four-year plans for engineers)*
B.2 Biology BS *(environmentally-oriented students often choose Biology BS over Environmental Science BS)*
B.3 Engineering BS- Sustainable Design Concentration
B.4 Engineering BS – Mechanical Engineering and Electrical Engineering Concentrations
B.5 Environmental Science BS – *we need a multi-disciplinary environmental studies minor or major*
B.6 Environmental Management Masters (with Duke) *No student has yet participated*
B.7 Forestry Management Masters (with Duke) *No student has yet participated*
B.8 General Science BS
B.9 Public Policy 5th year program (get BS or BA in any Major, then add year of Policy Making)
B.10 Religious Studies BA
B.11 Studio Art Minor
B.12 Theatre BA (set design)

C. SUSTAINABILITY-RELATED FACULTY EXPERTISE

Too many to list here

D. SUSTAINABILITY-RELATED SPACES

D.1 **A**rt Studios
D.2 **A**rchitectural Computer Servers (virtual green architectures and towns)
D.3 **B**iology Environmental Science Labs
D.4 **C**ampus (Lake, wetlands, much farmland across from quads,
organic garden – 300 pounds per year harvested, etc)
D.5 **E**ducation Department classrooms and labs
D.6 **E**ngineering Environmental Engineering Research Lab
D.6 **E**ngineering Fabrication Lab
D.7 **E**ngineering Geosciences Lab/Studio
D.8 **E**ngineering Design & Technology-Transfer Studio
D.9 **E**ngineering Solar Cabin and Sustainability-electronics Lab
D.9. **M**ath Computer lab (E368).
- Has ArcGis geographic information system (GIS) software
D.10 **P**olitical Science spaces
D.11 **R**eligious Studies – Young Center
D.12 **S**ociology and Anthropology spaces

OFF-CAMPUS: *We have use of Lancaster County Conservancy preserves for research & student projects. Closest one 3 miles away*

E. SUSTAINABILITY-RELATED SCHOLARSHIP

E.1 Faculty research and publications (List to be compiled)
E.2 "Sustainability-Related Grant Applications and Awards"
- *List removed for confidentiality*
E.3 Scholarship & Creative Arts Day *Sustainability Symposiums*
(including our 4th annual event March 21, 2015)
E.4 "GreenCon" Regional conferences

F. SUSTAINABILITY-RELATED CLUBS

F.1 "Biking Club"
F.2 "Environmental Group"
- M. Kozimor-King, Sociology
- Susan Webster, English
F.3 "FEAST" (Future Energies and Sustainable Technologies)
- T. Estrada, Engineering
F.4 "Habitat for Humanity"
F.5 "National Science Teachers Association"
- K. Blouch, Education
F.6 "Outing Club"
F.7 Engineers Without Borders (EWB) student chapter being formed

G. ACADEMIC COMPETITIONS and OPPORTUNITIES FOR STUDENTS TO PUBLISH

G.1 Engineering Solar Decathlon
- Partially planned for in Spring 2013 Charette

G.2 Engineering Solar Boats
- It's been several years since competing

G.3 Engineering Intelligent Ground Vehicle Competition
- Includes environmental mapping
- We competed three times in this
- Several years since we competed

G.4 Mobile Wellness Center Design Competition (Spring 2014)

G.5 Campus Wellness Center Design Competition (Fall 2015) – 8 judges

G.6 Health-Clinic Designsfor Sierra Leone, Africa (Fall 2015) – 22 judges

H. ACADEMIC OUTREACH

H.1 Professional affiliations
- Sierra Club, USGBC, EPA, NSPE, AIA, ASCE, ASEE, IEEE, ASME, etc)

H.2 Local farms
- Methane Digester saves $15,000/yr

H.3 Masonic Homes
- Largest Masonic retirement facility in the Nation? – Next door to us

H.4 Collaborations with other U.S. Schools
- Universities, Colleges, High-schools, Grade-schools

H.5 Collaborations with Schools Abroad
- Univ of Trento in Italy, Pantheon Institute in Rome, U. Gambia in Africa

H.6 Corporate affiliations
- Phoenix Contact USA and Germany, IBM, SustainX, Bechtel, etc

H.7 Government
- DEP, Planning commissions, Building inspectors, Mayors, State Legislature, U.S. Congress, Governor Tom Wolf, Senator Bob Casey

H.8 Foreign governments
- Italy, Gambia, Japan, Costa Rico, Middle East

H.9 Venture Capitol start-ups
- Via Ambassador Craig's International venture capital company, etc

H.10 NGO's
- Peace Core, Habitats for Humanity, World Vision, Lancaster County Conservancy, etc

H.11 Young Center and churches
- Don Kraybill for Amish and Mennonites
- Jeff Long for Hinduism, Jainism, and Buddhism.

H.12 Native Americans

I. SUSTAINABILITY-RELATED INTERNSHIPS

I.1 USGBC

J. PRESS

J.1 Winter 2012 Elizabethtown College Magazine *"Blue and gray turns green"*

J.2 SLE-Capstone Architecture Poster to Trustees
- And again to "Trustees in Training" on March 20, 2015)

J.3 Talk at Franklin & Marshal for Greencon15, March 19, 2015 3:30p
"Elizabethtown College Architecture of Wellness and Sustainability"

J.4 Compare our Green web-presence to other schools (2014)
- Hopefully action taken in 2015

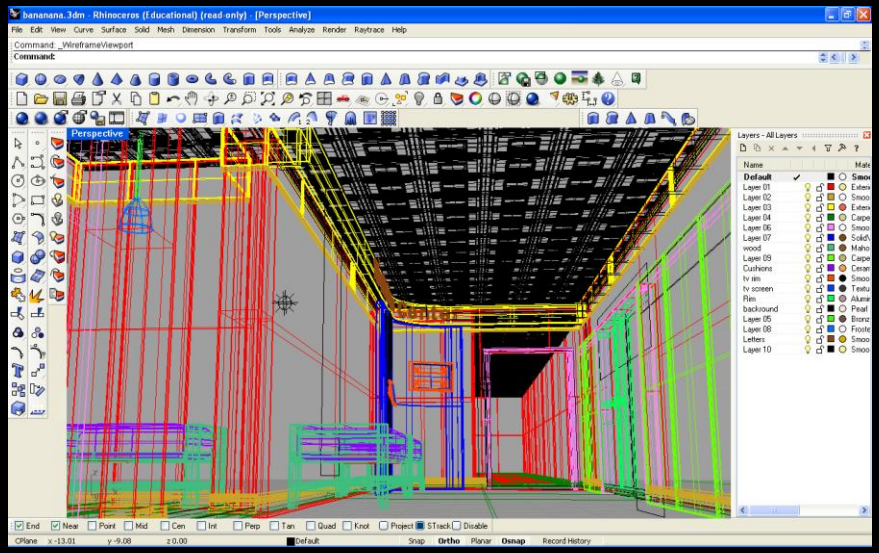
K. FACULTY/STAFF COLLABORATIONS

K.1 Successful 2013 Hydroponic Gardens
- Originally in Design & Technology-transfer Studio
- Now being built in food services

K.2 New large Elizabethtown College Photovoltaic Array to be built

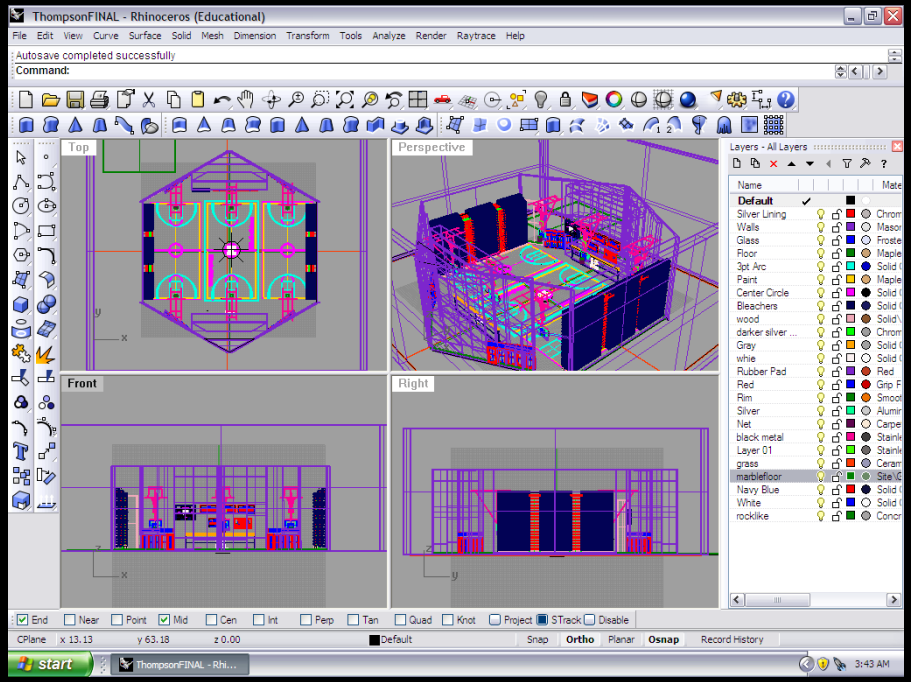
ETOWN Architecture 2006

Rhinoceros and Flamingo software



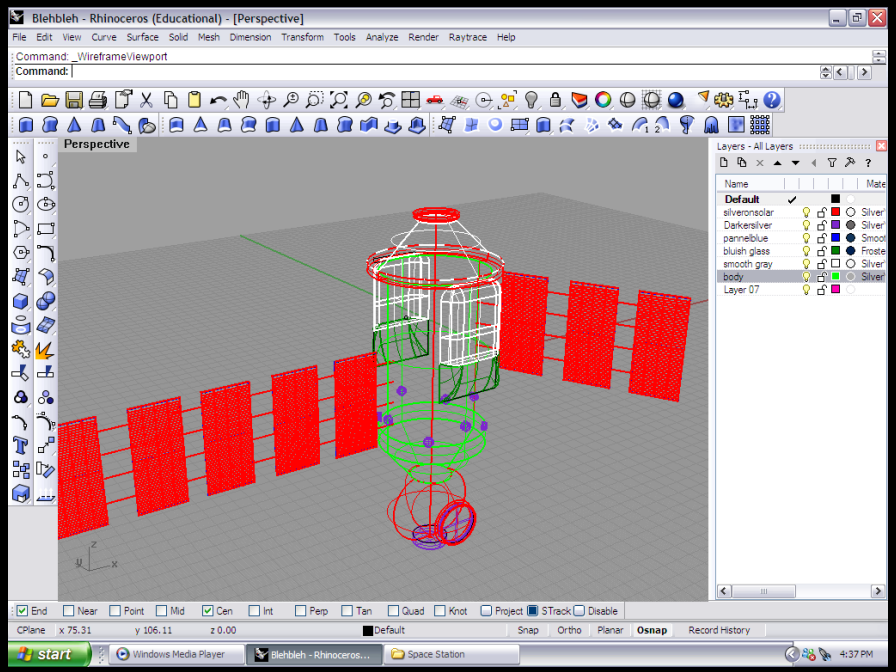
ETOWN Architecture 2006-2010

Rhinoceros and Flamingo software



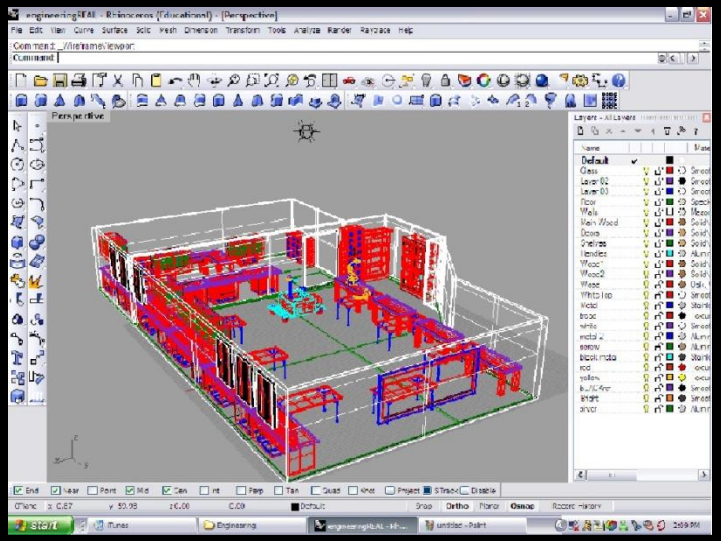
ETOWN Architecture 2006-2010

Rhinoceros and Flamingo software



ETOWN Architecture 2006

Rhinoceros and Flamingo software

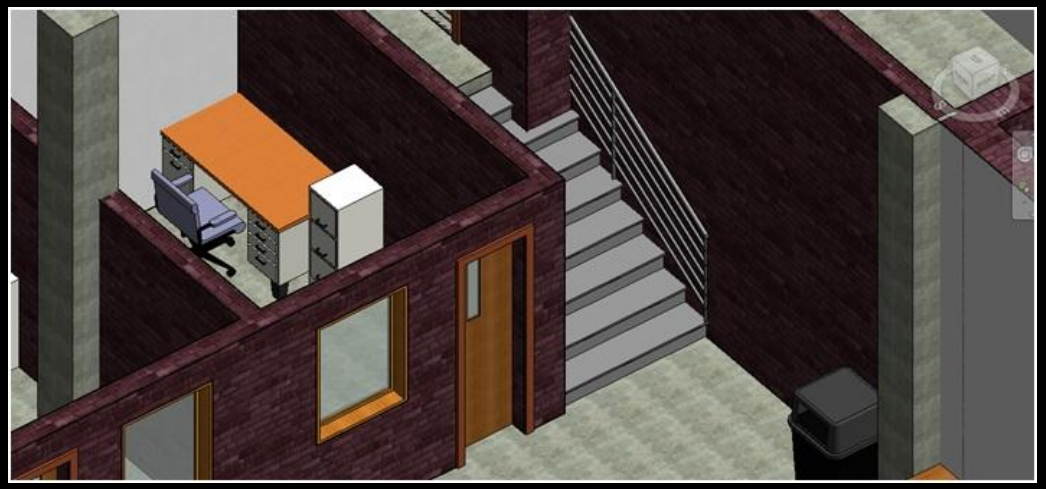


Design & Technology-Transfer Studio

(formerly “Robotics & Machine Intelligence Lab”)

ETOWN Architecture 2012

Revit software



ETOWN Architecture 2012

Revit software

ETOWN Sustainability Symposiums 2012,13,14,15
Part of our Annual Scholarship And Creative Arts Day

2nd ANNUAL ELIZABETHTOWN COLLEGE SYMPOSIUM ON SUSTAINABILITY

Tuesday, April 23, 2013 Gibble Auditorium 9:30am to12:30pm *(Posters at 1:15pm in Lobby)*

----------*Session 1* ----------

#1 9:30 AM "High-end Phoenix Contact Technologies for International Green Initiatives" by James Kelly

#2 9:40 AM "Reflections from 16 Months of Interdisciplinary/Multicultural Collaboration on a West African Social Business Start-Up"
by Jillian Casey, Jennifer Hughes, Eleanor McCarthy, Joshua Rowlands, Emily Vogel, Julia Ward, and Nicholas Young

#3 10:00 AM "Next Steps in Continuing Work Toward West African Social Business Start-Ups – New Product Development"
by Anthony Fraccica, Joshua Frey, and Courtney Warlick

#4 10:15 AM "Family EcoRise"
by Vaclav Hasik

#5 10:30 AM "Proposed Design to Replace a New Jersey Vacation Home Destroyed by Hurricane Sandy"
by Emily Vogel

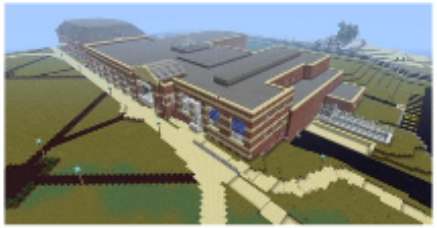
ETOWN Sustainability Symposiums 2012,13,14,15
Part of our Annual Scholarship And Creative Arts Day

#6 11:00 AM "SWOT Analysis of a Sustainable Entrepreneurial Ecosystem in Costa Rica"
by Kyle McNulty and Derek Zrncic

#7 11:15 AM "Computer Controlled Hydroponic Gardens"
by Sean Flannigan and Andrew Khela

#8 11:30 AM "Analyzing the Hydrological Impacts of a Proposed Sports/Recreation/Fitness Center at Elizabethtown College"
by Deborah Bartyczak, Josh Rowlands, Emily Vogel, and Nick Young

#9 11:45 AM "FEAST (Future Energies and Sustainable Technologies) Club Activities"
by James Annab, Jack Hess, Matt Klempa, and Anthony Fraccica



#10 12:00 PM "Social-networking, Crowd-sourcing Teamwork to Rapidly-Prototype Green Architecture and Communities"
by Ricky Sturz

#11 12:15PM "Solar Decathlon Charette" *by* Vaclav Hasik

----------*Posters* ----------

*(1:15PM in Lobby): **"LEED (Leadership in Energy and Environmental Design) Architectural Design"***
by Shane Weller, Kyle Wilt, Meghan Donahue, Emily Vogel, and Vaclav Hasik

JT Wunderlich 2004, 2008, 2009, 2011, 2014 *Professor*

Surveyed Italian Architecture in Italy *(while presenting and teaching)*

Venice (three times)
Padova (twice)
Trento (twice)
Roveretto
Florence
Tuscan county side
Rome
Genoa
Porto fino
Santa Magrietta

JT Wunderlich 2004, 2008, 2009, 2011, 2014 *Professor*

JT Wunderlich 2004, 2008, 2009, 2011, 2014 *Professor*


JT Wunderlich 2004, 2008, 2009, 2011, 2014
Professor

JT Wunderlich 2004, 2008, 2009, 2011, 2014 *Professor*

JT Wunderlich 2004, 2008, 2009, 2011, 2014

Professor

JT Wunderlich 2004, 2008, 2009, 2011, 2014


JT Wunderlich 2004, 2008, 2009, 2011, 2014

JT Wunderlich 2004, 2008, 2009, 2011, 2014 *Professor*


PENITENZIERIA
CONFESSIONI

JT Wunderlich 2004, 2008, 2009, 2011, 2014

Professor

more
HERE

JT Wunderlich 2010-2013

Architectural Computer Servers

For college students and children worldwide

Crowdsourced Architecture and Urban Design

Servers configured & maintained on home machines and third-party hosting sites

Multi-World "Tsojin"
Computer servers

JJW IV

JTW III

PLAYER RANKING; *Guest, Builder, Architect, Master, Admin, and Grandmaster* -- each with accumulated commands.

SQL DATABASE SERVER for logging player activity to allow rolling-back of "griefing" (destruction or construction by un-invited or misbehaving players). Initial release of Tsojin was public; After griefing by organized griefing teams, Tsojin was made private

MULTI-WORLD plug-in to allow concurrent worlds (and teleportation & gateways between). Tsojin has six worlds.

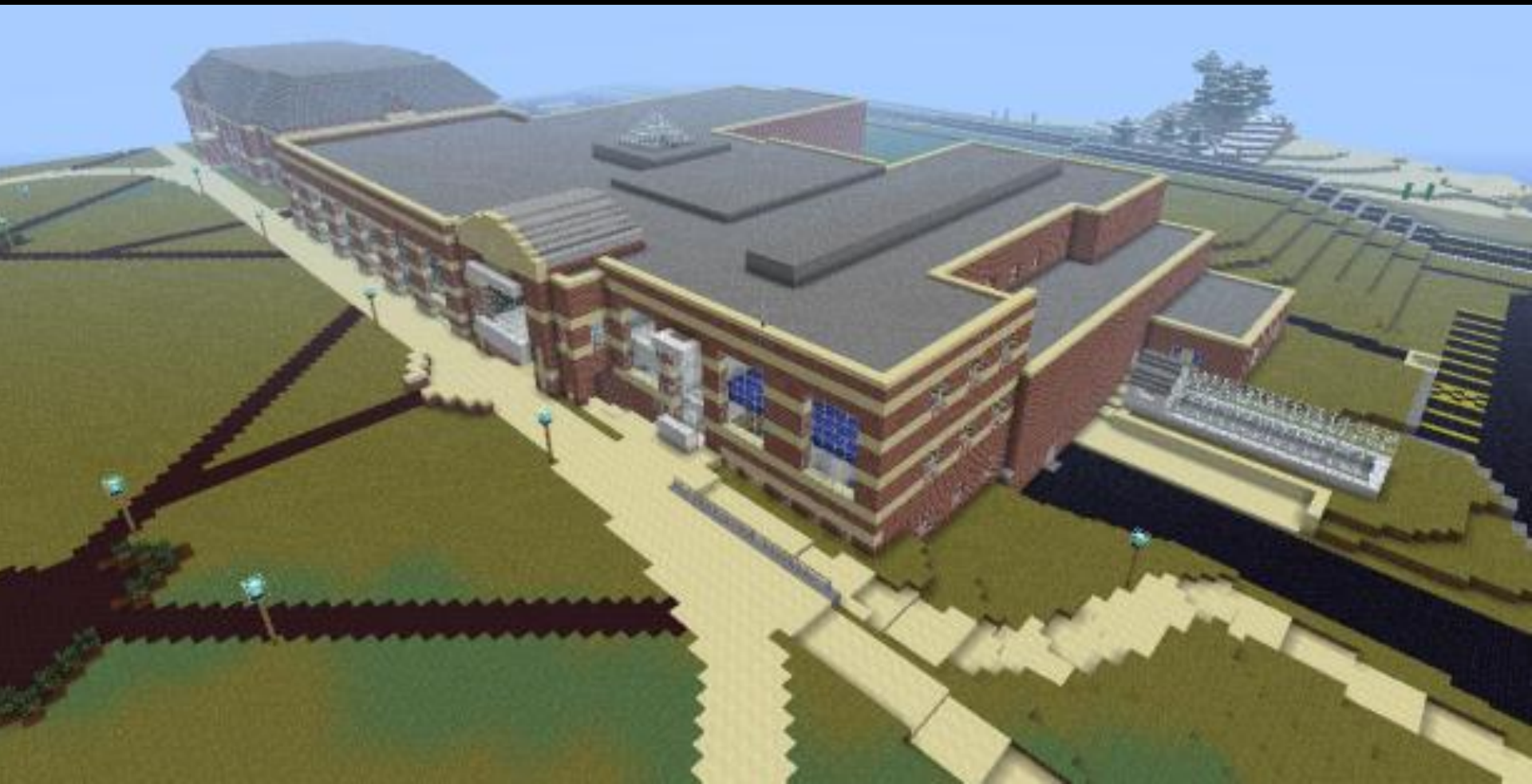
Many other plug-ins (foul-language censorship, establishing monetary systems, allowing aircraft and vehicles to move, locking tool chests, sign-posting, etc.).

2010 All initial TSOJIN Architecture
by my son Joseph J Wunderlich (JJW IV)

2012 Crowd-sourced College Campus Buildings

VIDEO

by College students in Architecture, Engineering, Computer Science, Cognitive Science, and Philosophy



2012 Crowd-sourced

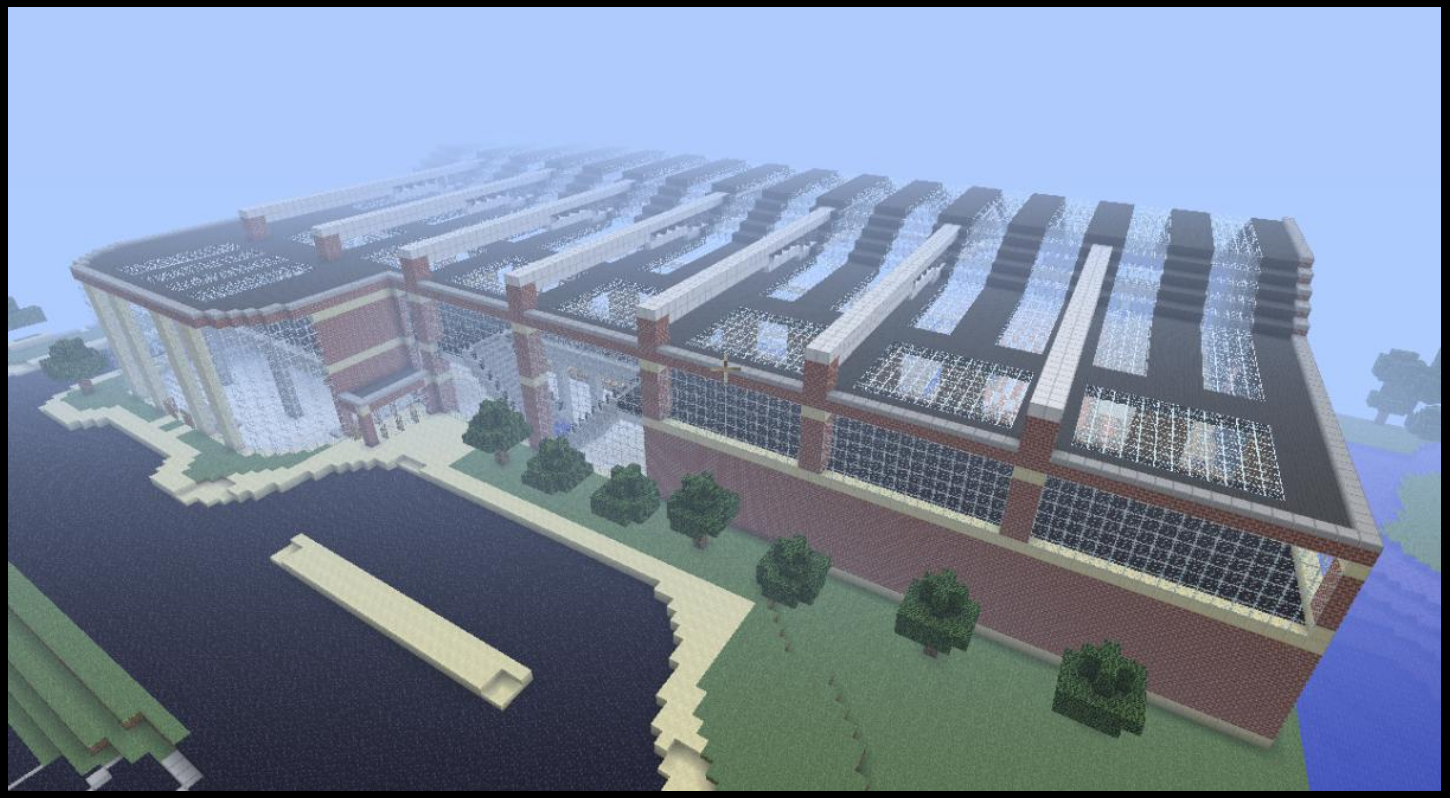
Four Sustainable towns

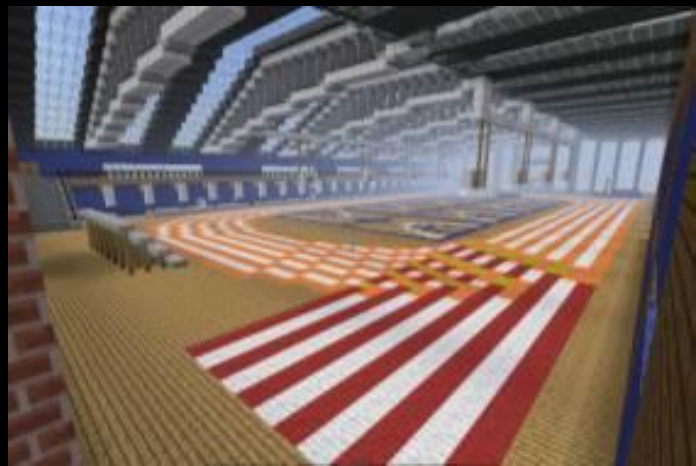
College Freshman from many Majors

Wellness centers built by visiting High School Students

2012 Crowd-sourced
Sample Wellness Center

VIDEO





JT Wunderlich 2013
Studied Japanese Architecture in Japan *(while presenting and vacationing)*

Kyoto
Osaka
Narita

JT Wunderlich 2013

Surveyed Japanese Architecture in Japan *(while presenting and vacationing)*

Kyoto
Osaka
Narita


more HERE

2013 Crowd-sourced

Four Japanese towns

College Freshman from many Majors

Wellness centers built by visiting High School Students

Website for many student and guest Architectures:
http://users.etown.edu/w/wunderjt/TSOJIN_ranks.pdf

YouTube videos for many student and guest Architectures:
https://www.youtube.com/channel/UC_kM_k93zreIu40CVwuHQzg?feature=watch

JT Wunderlich 2010-2014

Publications and talks given in Osaka Japan and London England:

http://users.etown.edu/w/wunderjt/Green_Social_Designs_Japan_paper_19.pdf

http://users.etown.edu/w/wunderjt/Green_Social_Designs_Japan_TALK_19_PLUS.pdf

http://users.etown.edu/w/wunderjt/CrowdSourced%20Architecture%20and%20Environmental%20Design_PAPER_15_TALK_SUBMITTED_EDITTED_Wunderlich.pdf

http://users.etown.edu/w/wunderjt/CrowdSourced Architecture and Environmental Design_PAPER_15_FINAL_SUBMITTED_EDITTED_Wunderlich.pdf

JT Wunderlich 2002-present (local case-study) *Homeowner / Design-Builder*

Southeastern Pennsylvania, USA

Before

After

Before

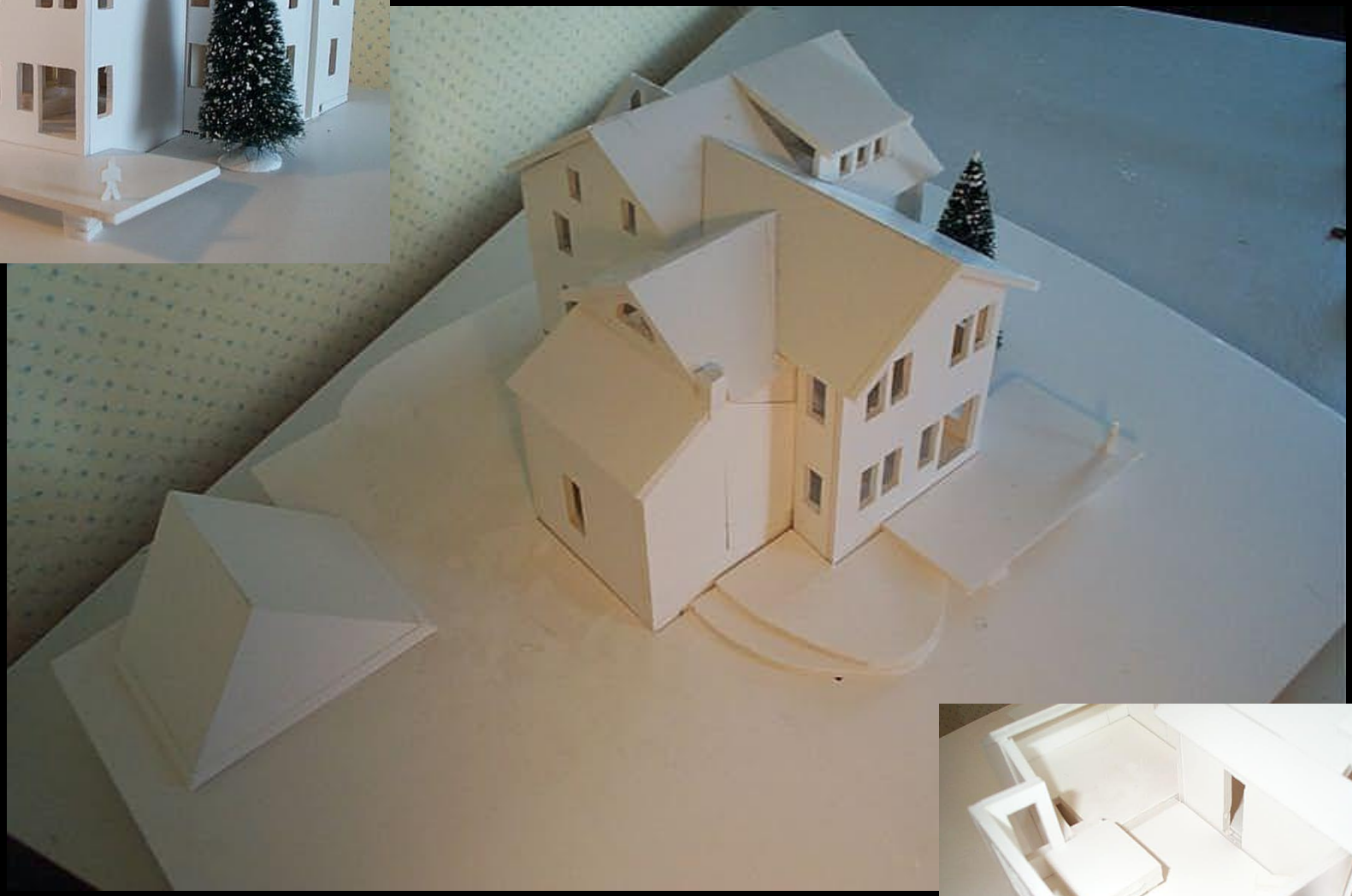
After

THREE MAJOR DESIGN CHOICES

DESIGN CHOICE 1

HEAD-SPACE TOO CRAMPED

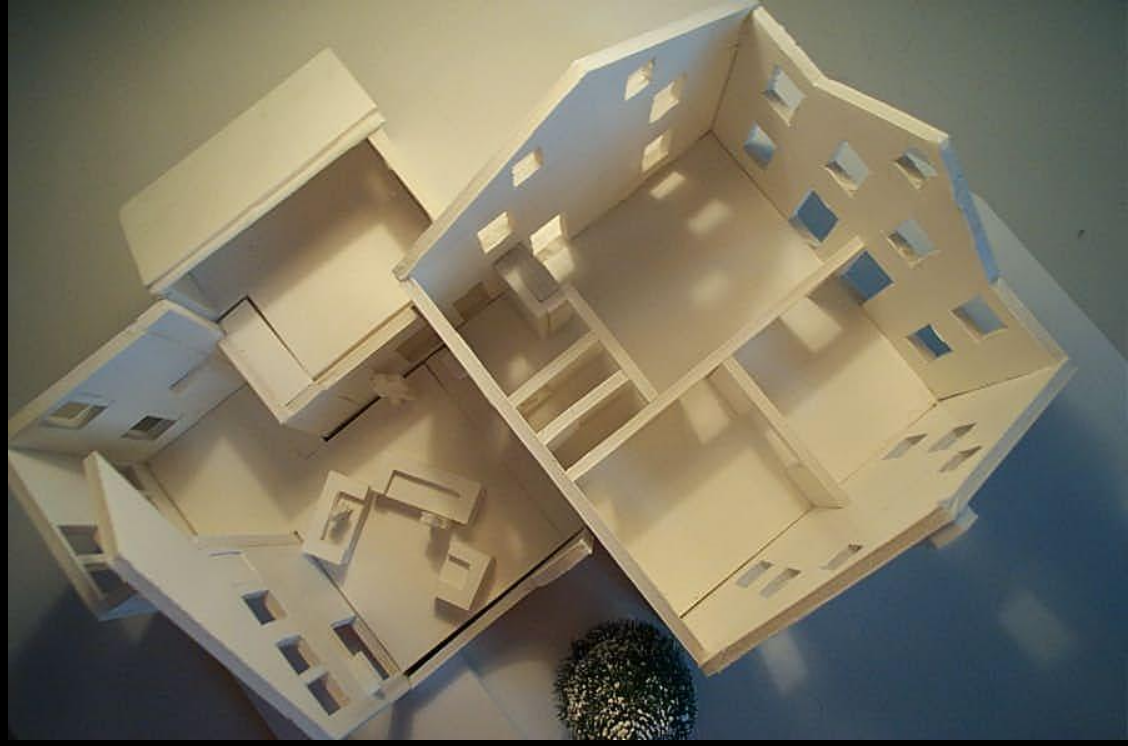
DESIGN CHOICE 2



DESIGN CHOICE 3

selected design

DESIGN CHOICE 3

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FRAME VISTA'S

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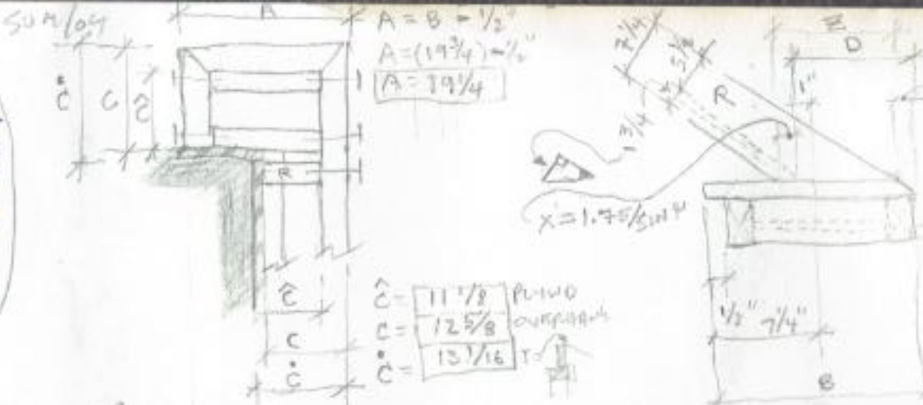
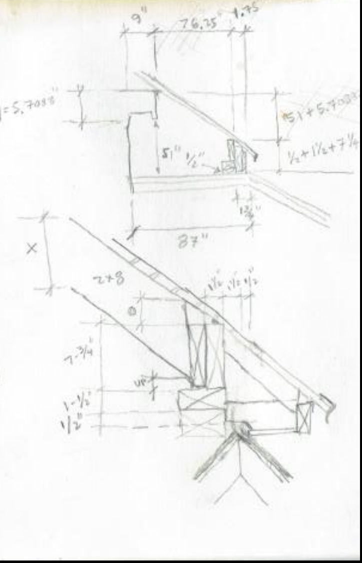
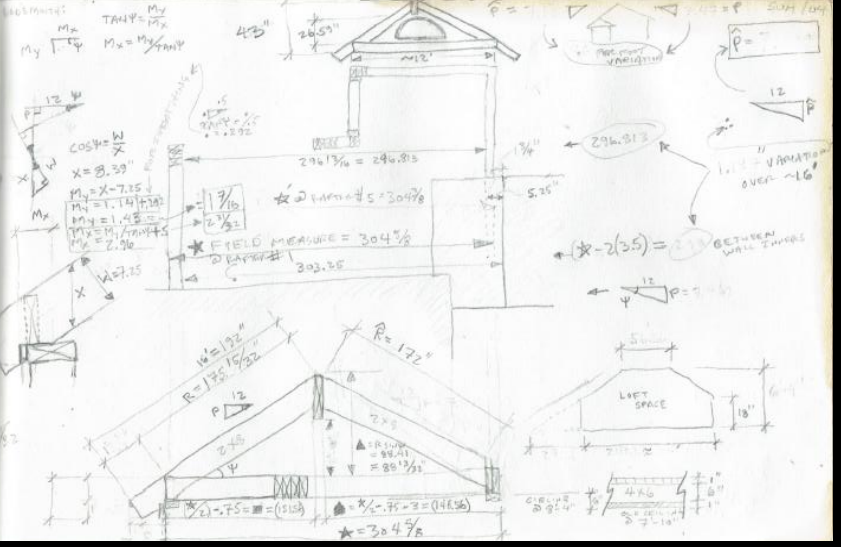
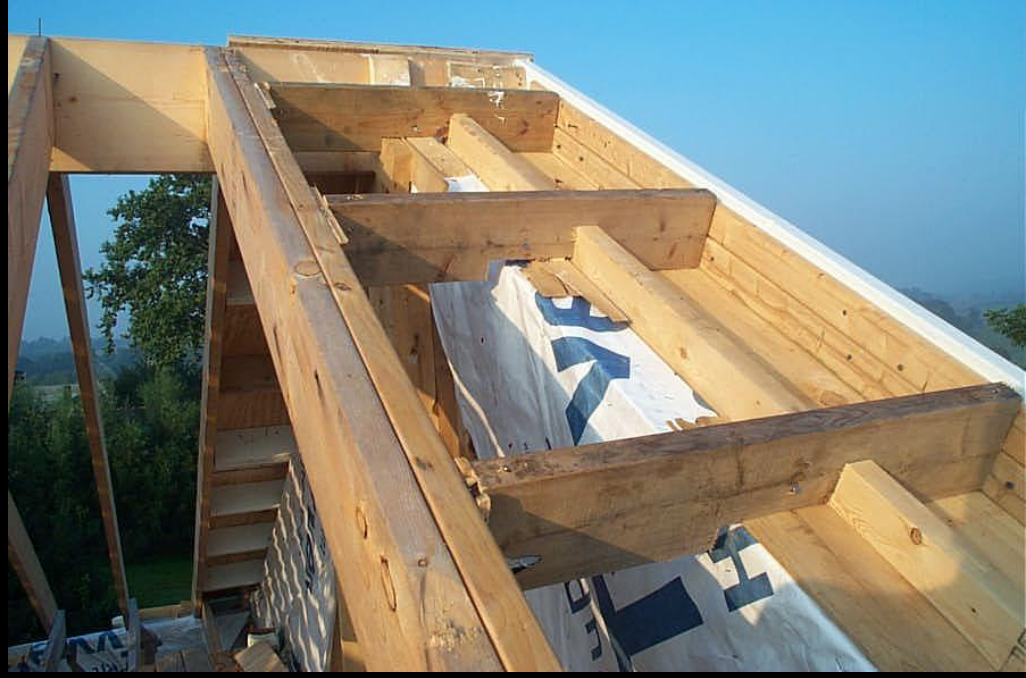

A = B - 1/2
A = 19 1/4
x = 1.75/SIN θ


wrap


2×8
87"


LOFT SPACE




Tyvek


WELCOME

(2012 LEED reflection)

LEED-NC v3.0 (2009) Preliminary Project Checklist

"WUNDERosin EAST" *(J. Wunderlich Residence/Farmette, possible future Bed & Breakfast)*
Near Elizabethtown College, Pennsylvania

18-Oct-12
Preliminary Review Only - Subject to Change

Yes	?	No			
11			**Sustainable Sites**	**28 Points**	
Y			Prereq 1	**Construction Activity Pollution Prevention**	Required	
1			Credit 1	**Site Selection**	1	UNOBSTRUCTED SOUTHERN EXPOSURE,SHIELDED NORTHRN, AA VIEWS
5			Credit 2	**Development Density & Community Connectivity**	5	COMPLIMENTS/PRESERVES FARM COMMUNITY ESTHETIC AND CULTURE
		N	Credit 3	**Brownfield Redevelopment**	1	not applicable, BUT RESTORATION OF 150-YEAR OLD STRUCTURES
		N	Credit 4.1	**Alternative Transportation**, Public Transportation Access	6	not applicable IN FARMING COMMUNITY
1			Credit 4.2	**Alternative Transportation**, Bicycle Storage & Changing Rooms	1	BIKES FOR EVERY FAMILY MEMBER
		N	Credit 4.3	**Alternative Transportation**, Low-Emitting and Fuel-Efficient Vehicles	3	NOT YET -- PLANNING HYBRID VEHICLE PURCHASE
		N	Credit 4.4	**Alternative Transportation**, Parking Capacity	2	not applicable IN FARMING COMMUNITY
1			Credit 5.1	**Site Development**, Protect of Restore Habitat	1	212 TREES PLANTED, FENCED-IN WILDLIFE, BIRD SANCTUARY CREATED
1			Credit 5.2	**Site Development**, Maximize Open Space	1	EXTENSIVE -- 3+/2 Acres
1			Credit 6.1	**Stormwater Design**, Quantity Control	1	FRENCH DRAINS AROUND NEW CONSTRUCTION
		N	Credit 6.2	**Stormwater Design**, Quality Control	1	GREY-WATER SYSTEM BEING CONSIDERED
		N	Credit 7.1	**Heat Island Effect**, Non-Roof	1	not applicable IN FARMING COMMUNITY
		N	Credit 7.2	**Heat Island Effect**, Roof	1	not applicable IN FARMING COMMUNITY
1			Credit 8	**Light Pollution Reduction**	1	RECYCLE ALL PLASTIC AND PAPER, DONATE CLOTHES, ETC. TO POOR
3			**Water Efficiency**	**10 Points**	**Notes**
Y			Prereq 1	**Water Use Reduction**, 20% Reduction	Required	
1			Credit 1	**Water Efficient Landscaping**	2 to 4	MINIMAL IRRIGATION FOR TREES AND 3 TO 4 GARDENS PER YEAR
1			Credit 2	**Innovative Wastewater Technologies**	2	NEW DRAINFIELD
1			Credit 3	**Water Use Reduction**	2 to 4	LOW-PRESSURE WELL, DISHES: HAND-WASH + ENERGY-EFF DISHWSHR
7			**Energy & Atmosphere**	**35 Points**	**Notes**
Y			Prereq 1	**Fundamental Commissioning of the Building Energy Systems**	Required	
Y			Prereq 2	**Minimum Energy Performance**	Required	
Y			Prereq 3	**Fundamental Refrigerant Management**	Required	
8			Credit 1	**Optimize Energy Performance**	1 to 19	OIL + ELECTRIC ZONES WITH ARTIFICIAL INTELLIGENCE COMING
1			Credit 2	**On-Site Renewable Energy**	1 to 7	ACTIVE SOLAR, GROUND WATER LOOP, & WIND BEING CONSIDERED
		N	Credit 3	**Enhanced Commissioning**	2	not yet
		N	Credit 4	**Enhanced Refrigerant Management**	2	not yet
		N	Credit 5	**Measurement & Verification**	3	not yet
		N	Credit 6	**Green Power**	2	not yet
11			**Materials & Resources**	**14 Points**	**Notes**
Y			Prereq 1	**Storage & Collection of Recyclables**	Required	
3			Credit 1.1	**Building Reuse**, Maintain Existing Walls, Floors & Roof	1 to 3	EXTENSIVE -- PRESERVATION OF 95% OF EXISTING STRUCTURES
1			Credit 1.2	**Building Reuse**, Maintain 50% of Interior Non-Structural Elements	1	EXTENSIVE - 90% MAINTAINED
2			Credit 2	**Construction Waste Management**	1 to 2	EXTENSIVE -- PRECISE MATERIAL ESTIMATES, NO DUMPSTERS
2			Credit 3	**Materials Reuse**	1 to 2	EXTENSIVE -- ALL POST & BEAMS, AND SIDING, AND STONES
	?		Credit 4	**Recycled Content**	1 to 2	SOME, BUT UNCERTAIN PERCENTAGE
2			Credit 5	**Regional Materials**	1 to 2	65% LOCAL BUILDING SUPPLIER w/in 10 miles, REUSE OF WOOD & STONE
1			Credit 6	**Rapidly Renewable Materials**	1	90% WOOD CONSTRUCTION
	?		Credit 7	**Certified Wood**	1	POSSIBLY SOME -- NEED TO CHECK RECORDS
11			**Indoor Environmental Quality**	**15 Points**	**Notes**
Y			Prereq 1	**Minimum IAQ Performance**	Required	
Y			Prereq 2	**Environmental Tobacco Smoke (ETS) Control**	Required	
		N	Credit 1	**Outdoor Air Delivery Monitoring**	1	
1			Credit 2	**Increased Ventilation**	1	ATTIC TEMP-CONTROLLED FANS, PLENUMS FOR OPTIMAL AIR-FLOW
1			Credit 3.1	**Construction IAQ Management Plan**, During Construction	1	MASKS,NEGTVE-PRESS CONTAINMENT, AND VENTILATION/FANS ALWAY
1			Credit 3.2	**Construction IAQ Management Plan**, Before Occupancy	1	CONTAINMENT AND VENTILATION
1			Credit 4.1	**Low-Emitting Materials**, Adhesives & Sealants	1	WATER-BASED WHEN POSSIBLE
1			Credit 4.2	**Low-Emitting Materials**, Paints & Coatings	1	LOW-VOC'S (Volatile Organic Compounds), PAINTS WATER-BASED
1			Credit 4.3	**Low-Emitting Materials**, Flooring Systems	1	ALL-WOOD, MINIMAL VOC'S
	?		Credit 4.4	**Low-Emitting Materials**, Composite Wood & Agrifiber Products	1	ALWAYS ATTEMPTED MINIMAL VOC'S -- NEED TO CHECK RECORDS
1			Credit 5	**Indoor Chemical & Pollutant Source Control**	1	RADON TESTED, CO2 MONITORED, INCREASED VENTILATION
		N	Credit 6.1	**Controllability of Systems**, Lighting	1	NOT YET, BUT DAILY FAMILY LIGHTING-MINIMIZATION PLAN
1			Credit 6.2	**Controllability of Systems**, Thermal Comfort	1	SEVERAL PROGRAMMED ZONES (ARTIFICIAL INTELLIGENCE PLANNED)
1			Credit 7.1	**Thermal Comfort**, Design	1	PROGRAMMED ZONES, DEHUMIDIFICATION
		N	Credit 7.2	**Thermal Comfort**, Verification	1	NOT YET
1			Credit 8.1	**Daylight & Views**, Daylight 75% of Spaces	1	EXTENSIVELY OPTIMIZED
1			Credit 8.2	**Daylight & Views**, Views for 90% of Spaces	1	EXTENSIVELY OPTIMIZED
5			**Innovation & Design Process**	**8 Points**	**Notes**
1			Credit 1.1	**Innovation in Design**: Provide Specific Title	1	EXTRA INSULATION,Vapor & Moisture BARRIERS,Northern BUFFER SPACES
1			Credit 1.2	**Innovation in Design**: Provide Specific Title	1	OVERALL BUILDING HAS LOW SURFACE-AREA TO VOLUME RATIO
1			Credit 1.3	**Innovation in Design**: Provide Specific Title	1	STRUCTURAL REINFORCING OF OLD HOUSE WITH NEW FOUNDATIONS
1			Credit 1.4	**Innovation in Design**: Provide Specific Title	1	99% CONSTRUC BY OWNER W/ HAND-TOOLS, 70 YARDS DIRT W/SHOVEL
1			Credit 1.5	**Innovation in Design**: Provide Specific Title	1	212 NEW TREES: PASSIVE-SOLAR, WINDBLOCK, NOISE-CONTROL ,BIRDS
		N	Credit 2	**LEED® Accredited Professional**	1	OWNER PREPARING TO TAKE LEED GA EXAM
2			**Regional Priority**	**4 Points**	**Notes**
1			Credit 1.1	**Regional Priority**: Provide Specific Title	1	PRESERVING EXISTING FARMHOUSES AND BARNS
1			Credit 1.2	**Regional Priority**: Provide Specific Title	1	3 TO 4 WORKING GARDENS PER YEAR -- AGRICULTURAL ZONING
			Credit 1.3	**Regional Priority**: Provide Specific Title	1	
			Credit 1.4	**Regional Priority**: Provide Specific Title	1	
60			**Project Totals** (pre-certification estimates)	**110 Points**	**ADD 16 POINTS WHEN SOLAR, WIND, & AI ZONES DONE**

Yes ? No

Certified 40-49 points Silver 50-59 points Gold 60-79 points Platinum 80-110 points

JT Wunderlich 2002-present
Southeastern Pennsylvania
2000sf remodel +1500sf new

Homeowner / Design-Builder

ARCHITECTURE THEORY *(2015 reflection)*

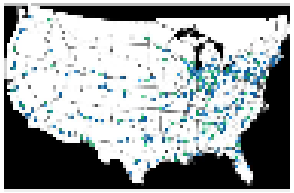
- Form = cubes and gables, vertical
- Scale = human
- Behavior = home, animal reserve
- Context = Amish and Mennonite farmland
- Proportion = complimentary gables
- Balance = asymmetrical
- Symbolism = stability, family, framed vista's
- Tastes = traditional, simple elegance
- Anthropomorphism = none intended
- Color = white, grey, black
- Texture = smooth, ordered
- Rhythm = semi-syncopated
- STYLE = Post-modern, colonial, craftsmen

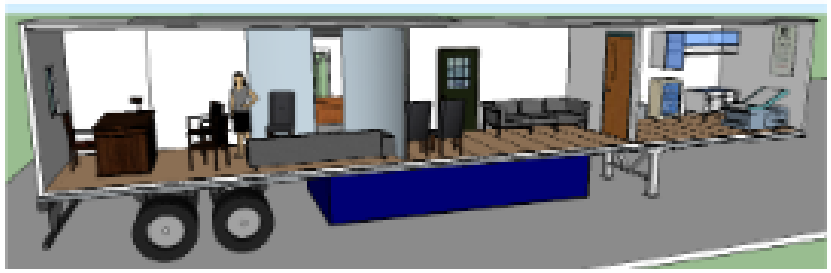
ETOWN Architecture 2015

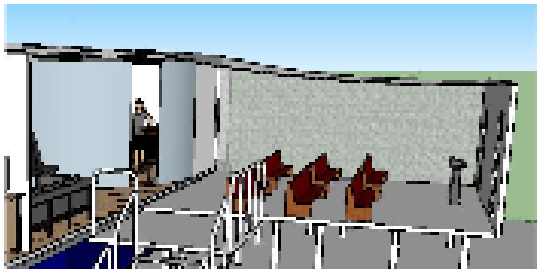
Revit Software

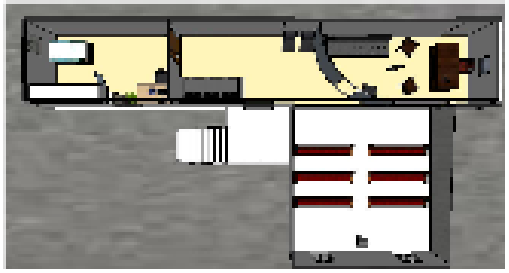
Trucker Wellness Centers (Psychological, Medical, Spiritual)

- Art/Egr499 was part of Spring 2014 design competition (14 students, 5 teams, 10 judges)
- A Social Enterprise Institute project ($5780 of student awards), *(PI: J Wunderlich PhD)*









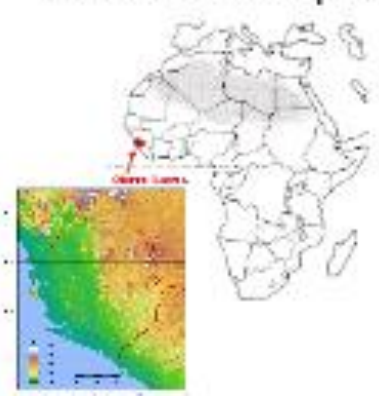
http://users.etown.edu/w/wunderjt/home_student_ARCHITECTURE_EGR343_2014.html

ETOWN Architecture 2015

Revit Software

Primary Care Medical Clinics for 50 sites in Sierra Leone Africa

- Spring 2015 integration of Fall designs from *EGR343 Green Architectural Engineering* (19 students, 6 teams, 8 judges)
- A Social Enterprise Institute project *(PI: J Wunderlich PhD)*



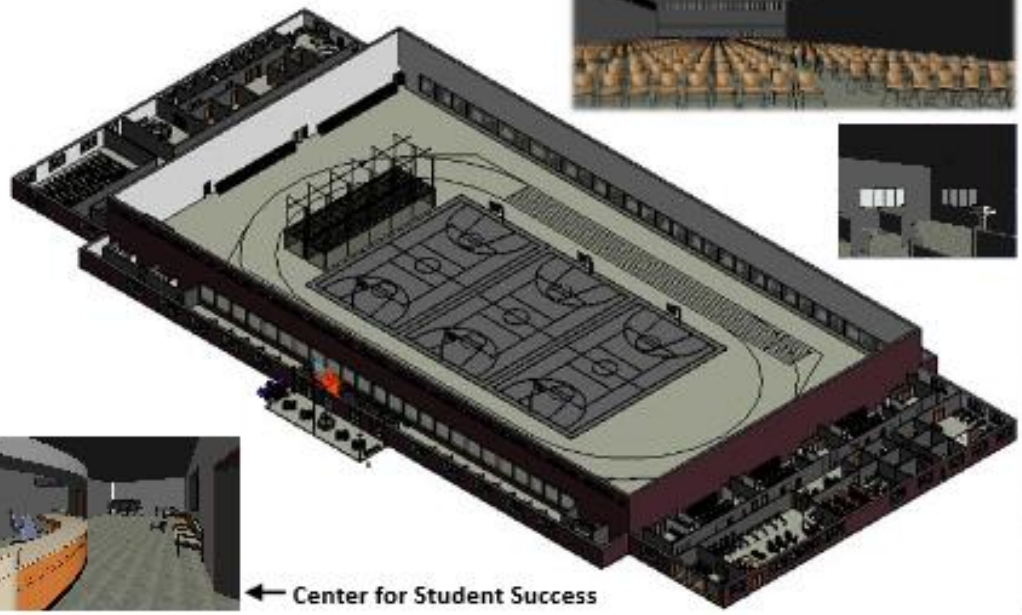
http://users.etown.edu/w/wunderjt/home_student_ARCHITECTURE_EGR343_2014.html

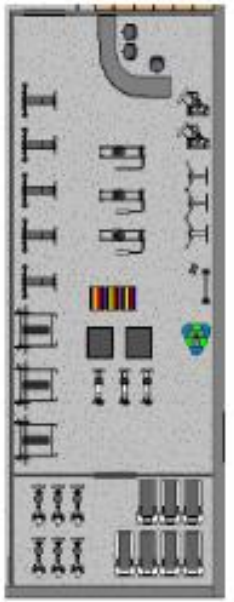
ETOWN Architecture 2015

Revit Software

Campus Wellness Center (Mind, Body, Spirit)

- Spring 2015 integration of Fall designs from *EGR343 Green Architectural Engineering* (18 students, 6 teams, 22 judges)
- The 22 judges included many Faculty and Staff, and several outside professionals





← Center for Student Success

http://users.etown.edu/w/wunderjt/To_Stakeholders.pdf

EXTRA SLIDES ----------→

(Likely not shown in talk)

JT Wunderlich PhD Architecture Portfolio

B.S. **Architectural Engineering** 1984 (U. Texas, Austin)
M.Eng. Engineering Science 1992 (Penn State)
Ph.D. Electrical (& Computer) Engineering 1994 (U. Delaware)
*Plus two years (39 credits) of **Urban and Environmental Design** (U. California, San Diego)*

Over ten years of Architecture experience in Texas, California, and Pennsylvania

SEE FULL RESUME: http://users.etown.edu/w/wunderjt/Wunderlich,JoeCV.pdf

JT Wunderlich Architecture Portfolio

* = *exhibited in this portfolio*

* 1971-1975: **24 balsawood buildings**, model railroading hobby
(displayed in private grade school and public junior high) *ages 10-14*

* 1977: **3rd Prize, Philadelphia Municipal Building**
(state-wide architectural design competition) *age 16*

1980: **1st Prize, paper column & bridge contest**, Penn State *(column held 33 bricks, a University record)*

1981: **2nd prize, Modular Lunar Buildings design**, Penn State (US Steel sponsored competition)

* 1981: **Arts Interest House Design**, Ink-on-Mylar drawings (Penn State Architecture Design Studio III)

* 1981: **Office Building Design & Engineering** (Penn State Working Drawings course)

* 1981,82: **Design/Builder**, many small remodels, State College PA (two intermittent employees)

• 1982-84: **Owner, Construction Estimating business**, Austin TX
(negotiated contracts with contractors for computer-generated quantity estimates)

1984: **BS Architectural Engineering, University of Texas at Austin**

• 1984,85: **Project-Manager/Designer**, West Lake Oaks office complex, thirteen buildings
Doerring Development Corporation, Austin TX (Design/Build/Development company)
(worked under Registered Architect, two buildings had IBM/360 raised-floor computer rooms)

• 1985,86: **Director of Projects/Designer**, 100,000sf hi-tech “Cornerstone” office complex
JDC inc, La Jolla CA *(Developer)*
(Project nominated for San Diego “Orchid” award)

1986: **Designer**, Del Mar CA upper-story addition, ocean-view

JT Wunderlich Architecture Portfolio

* = *exhibited in this portfolio*

- 1986,87: **39 credits in Urban & Environmental Design, University of California San Diego (UCSD)**
  (2nd BS program) – *3 exhibits:* **Campus Design, La Jolla Development, City Design Theory paper**

* 1986,87: **Urban Planner**, San Diego County Local Agency Formation Commission (3/4-time)

* 1987: **Design/Builder**, 1000sf Calivita House remodel, San Diego CA

* 1987,88: **Architectural Engineer**, Lead-Designer for San Francisco Bay Area
PSI inc, Lafayette CA, *formerly Hall-Kimbell (Headquarters in Lawrence KS)*

* 1989,90: **Design/Builder,** 1500sf School Lane remodel, Wayne PA

* 1990: **Hobbyist**, Scale model of brother's house; Doll house for children

1991: **Design/Builder,** 1000sf Chen remodel, Ambler PA (including rec-room, bar, cabinetry)

2000: **Member, planning committee** for new $12M Elizabethtown College Student Center

* 2002-present: **Design/Builder,** 2000sf remodel + 1500sf new, Manheim PA (personal farmette)

* 2004: **Wrote Spec's for** Design & Technology-Transfer Studio *(formerly Robotics & Machine Intelligence Lab)*

* 2004,2008,2009,2011,2014: **Studied Italian Architecture** while presenting and teaching in Italy

* 2010-13: **Created** Architectural computer servers for College students, and guests world-wide

* 2011-13: **Created** (and teach courses in) Elizabethtown College
Sustainable Design Engineering Major, and Architectural Studies Minor

2013: **Studied Japanese Architecture** while traveling and presenting in Japan

- 2014,15 **Member of** Sustainability Committee , Elizabethtown College PA
- 2014,15 **Primary Investigator** for Elizabethtown College Social Enterprise projects:
  Trucker Wellness Center Designs, Sierra Leone Africa Health Clinic Designs

Download PowerPoint of full portfolio:

http://users.etown.edu/w/wunderjt/Wunderlich_JT_Architecture_and_Urban_Design_PORTFOLIO.pptx