

SUSTAINABILITY ACTION PLAN . 2017 FFA Architecture and Interiors, Inc.



FFA is committed to thoughtful stewardship of our natural and built environments through a careful consideration of balancing environmental, cultural and economic resources today so they may persist for future generations.

SUMMARY

FFA's design culture is strongly rooted in place and history. Established in 1956 by William Fletcher and a collaborative group loosely known as the "14th street gang," the early practice was influential in establishing Northwest Regionalism as a style of architecture. The firm continues to design projects that are sensitive to context, beneficially interact with their environments, and celebrate regional materials.

FFA has a strong portfolio of renovating existing and historic structures, the "greenest buildings." We respect the embodied energy that is present within existing buildings and constantly aim to creatively adapt these structures to the changing needs of modern society.

Our work has made us keenly aware of the importance of preserving resources, both natural and built, for future generations. For decades, FFA has worked within our National Parks, our nation's most treasured and sensitive natural areas. This work continually strengthens our commitment to sustainability and our understanding of natural systems and ecology such that FFA thoughtfully works with these elements and their contexts to create excellent enduring projects.

APPROACH

Sustainability is central to FFA's work and is considered the basis of good design rather than supplementary to our process and project outcomes. As a core value, we incorporate sustainability into our design process, projects, office culture and operations.

Our approach is holistic utilizing a "One Team" integrated design process. To meet aggressive sustainability goals, all team members must work together from project outset to identify opportunities and successfully implement them to a project's advantage

FFA employs practical innovation toward achieving high-level sustainability goals that are tailored to each project. Our methodology is strongly rooted in place and vernacular understanding. We look for architectural solutions that respond to the particular site and functional purpose of each project while capitalizing on synergistic strategies. Building on timeless techniques and practices, we also seek innovative solutions to create buildings that perform, are durable, resilient, and inspiring.

ACTION PLAN

The FFA Sustainability Action Plan accounts for our in-house operations, our design process, and project implementation. It establishes goals for office-wide energy and water use, reducing waste streams, and promoting employee health and awareness. It serves as a framework for integrating sustainability into our design process at the ground level and tracking goals throughout projects. It outlines how key sustainable energy, materials, water and site strategies should be incorporated into project documents and specifications. This policy is reviewed by the firm annually to track actions and establish new goals accordingly.







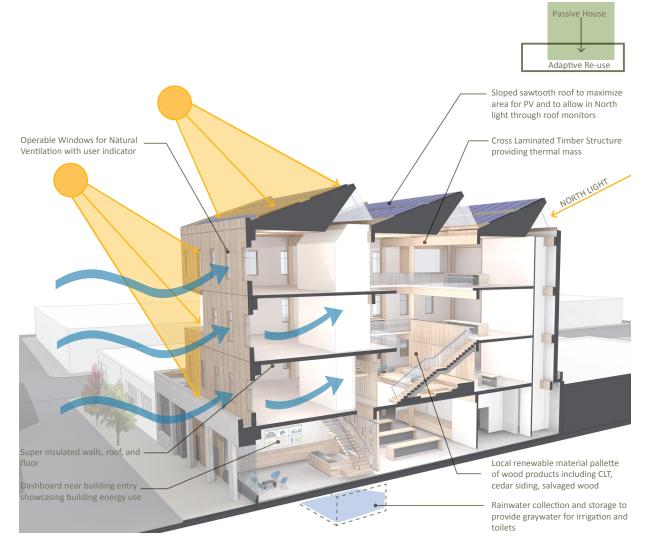
OVERVIEW

FFA clearly communicates and advocates the value of sustainable design throughout our process. We work closely with clients to identify key sustainability strategies, metrics, and building certification systems that are project-appropriate while meeting the client's objectives. Through careful research, we seek innovative solutions that propel projects forward and target incentives to help achieve aggressive goals.

Sustainability is first introduced at project kick-off and shortly followed by a design charrette to focus the conversation. Consultants, stakeholders, and the design team work collaboratively, utilizing an integrated design process to ensure goals are well coordinated and effectively met.



ABOVE: FFA design charrette RIGHT: sustainability studies & diagramming





ABOVE: FFA Design Process Diagram

SUSTAINABILITY WORK FLOW

I. At project outset, a Sustainability Lead is assigned to each project. This team member is responsible for providing background research and assistance to the design team and tracking project goals at each phase.

II. Potential strategies, systems, metrics, certification systems, and incentives are carefully researched. Site analysis data and baseline EUI information is compiled. Initial massing, shading, and daylighting studies are performed.

III. Research is compiled and tailored to the overall story of the project. This information is presented to the client so they may make informed decisions. The 2030 Challenge and current benchmark is introduced, advocated for, and discussed.

IV. A design charrette occurs at the beginning of Schematic Design to identify how potential strategies may be best integrated into the overall design.

V. The team refines massing and daylighting studies and initiates shoebox energy modeling to identify target energy use intensity. Additional sustainability strategies and systems are focused. Sustainable materials and products are selected.

VI. Strategies are implemented into the design and detailed in the documents.

VII. Sustainability goals are tracked and verified at the end of each project phase.

VIII. At a project's conclusion, data on building certifications, target, and actual EUI's, sustainability strategies, and post occupancy surveys are compiled into the FFA project database.



PROJECT IMPLEMENTATION

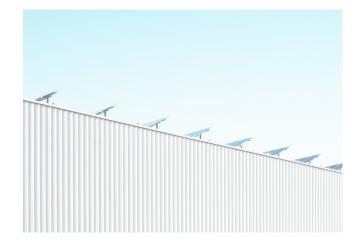
We apply the following basic sustainable strategies to all our projects recognizing the benefits these have for the health and well-being of building occupants, the environment, and to long-term maintenance and operating costs. Carefully siting buildings enables projects to save on energy use while simultaneously maintaining the richness of the surrounding environment. Healthy building products, ample daylighting, and controllability of thermal comfort enrich the built environment for users and increase productivity.

SITE

- Collect site climate data, window rose data, sun angle analysis, topography, natural systems/ecological information, and view corridors at the beginning of every project.
- Site new buildings with strong preference toward East-West building orientation.
- Advocate for preserving habitat and open space through designing efficient floor plates and creating outdoor public spaces with native vegetation.







WATER

- Advocate that only low flow plumbing fixtures those meeting the prerequisite for LEED v4 be specified.
- Recommend native plant species or xeriscape landscaping be implemented to reduce or eliminate irrigation. When irrigation is necessary, only efficient systems — those meeting the LEED v4 prerequisite — are specified.
- Collaborate with landscape architects and civil engineers to reduce stormwater loads through green roofs, bioswales, water storage systems, and other environmentally sensitive means.

ENERGY

- Introduce and champion the 2030 benchmark at the outset of each project.
- Perform shoebox energy modeling, daylight modeling, and analysis of these to determine the most effective sustainable strategies for reaching an aggressive target EUI.
- Research available incentives to meet these goals.
- Track all major projects' target EUIs at the end of each design phase.
- Advocate for the utilization of renewable energy including solar and solar thermal, efficient HVAC systems including VRF's, LED lighting and photosensors.

MATERIALS

- Specify only low-VOC products and materials that have product disclosure forms available (HPD, EPD).
- Prioritize local, renewable, reclaimed, and recycled materials and sustainably-harvested wood products (FSC or equivalent). Specify at least five (5) products that have recycled or renewable content per project.
- Prioritize existing building market sector. Meet LEED v4 "Building Life Cycle Impact Reduction" credit and salvage, or preserve the maximum amount of existing structure and materials.
- Meet LEED Constructon Waste Management Prerequisite for all projects and include verbage in specifications.
- Reduce quantities of required submittal materials from (3) to (1) as noted in specifications.

HEALTH

- Design to maximize daylighting and views for all building occupants. Utilize biophillic design strategies to strengthen the relationship between building users and the natural world.
- Advocate for occupant control by specifying operable windows, individual lighting controls, daylighting and shading devices, and zoned heating and cooling systems.

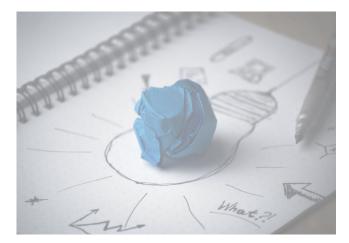
FUTURE GOALS

We recognize that it is critical to consider the future and how our projects may be improved. We review this policy annually to confirm it is being met and to set new goals.

- Discuss sustainability goals at project kick-off meeting.
- Track all projects against the 2030 Challenge benchmark. Work toward 30% of all projects meeting the Challenge targets.
- Specify materials that are not on the Living Building Challenge redlist.
- Develop Specifications that better integrate sustainability.
- Perform Post-Occupancy Studies as a standard service in project proposals.
- Utililize University of Oregon and Energy Trust resources and incentives.









OFFICE OPERATIONS

ENERGY

FFA supports reducing energy use through improved efficiency and alternatives. General office lighting is compact fluorescent and set on photo-sensors that dim light levels with increases in daylight. Occupancy sensors turn lighting off when spaces are un-used at night and on weekends. All FFA equipment including copiers, printers, computer terminals, and monitors is Energy Star certified. It is company Sustainability Policy that all computers, monitors, and equipment are turned off at the end of each day.

WATER

FFA supports reducing water consumption. Aerators are installed on all faucets to reduce water flow rates. Restroom aerators are 0.5gpm minimum and kitchen aerator is 1.5gpm minimum.

Future Goals:

- Purchase LED task lamps
- Enlist an engineer to survey office energy use
- Advocate for dual flush toilet flushometers.



WASTE REDUCTION

FFA supports reducing the amount of waste sent to landfills through recycling, reducing waste streams, and donating supplies. Copier paper waste is reduced through duplex print default settings. FFA's Controller submits billings and distributes paystubs electronically. To discourage excess packaging, durable dishware is provided for employee use and caterers are encouraged to provide family style meals.

FFA offers and encourages recycling of glass, cardboard, paper, and plastics. Recycling containers are located at each desk and in all common areas and conference rooms. Recycling is monitored to ensure materials are placed in proper bins. Annual electronics recycling drives are held to collect used batteries, light bulbs, and equipment. Interiors Department and Construction Submittal materials are recycled or donated to local organizations for repurposing.

TRAVEL

FFA supports sustainable travel options that reduce greenhouse gas emissions for both commuting and business-related travel. A TriMet public transportation subsidy of 42% off monthly pass cost is offered to all employees. FFA's website provides information about public transportation options available to the office.

FFA incentivizes pedestrian and bike commuting monthly at the same level as the TriMet transit subsidy. Each year, the company participates in the BTA's "Bike More Challenge." Additionally, the Pacific Building has a locked room for long-term bicycle storage along with lockers, and changing rooms.

FFA owns a hybrid company car that is available for employee use. Personal parking and passes are not offered.

Future Goals:

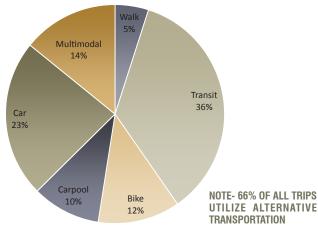
- Offer composting and GoBox reusable take-out lunch container services.
- Re-purpose single-sided white paper prints into notepads.



Future Goals:

- Purchase videoconferencing camera to use in lieu of site meetings and visits.
- Purchase offsets for airline travel.

FFA STAFF COMMUTE METHODS



CULTURAL OUTREACH

FFA supports the Portland community through service. The firm participates in organizing, implementing and collecting goods for food bank, school supply, and clothing drives 2-3 times throughout the year. Employees regularly volunteer time at area schools, universities and professional organizations. FFA is committed to an annual Day of Service with a local organization.

HEALTH & WELLNESS

FFA supports the health and well-being of its staff. Health insurance, a cafeteria plan, and short-term disability insurance are provided to all employees.

FFA's office offers access to daylight and views from every desk. The Pacific Building's rooftop outdoor terrace is available for lunches and breaks.

Future Goals:

- Commit 1% of employee billable hours to pro-bono work.
- Purchase environmentally friendly cleaning products.

BUSINESS OPERATIONS

FFA operates to maintain the economic sustainability of the business as well as support sustainable environmental and cultural practices through procurement and business strategies. FFA offers a sustainable purchasing policy that accounts for both short-term and long-term purchasing objectives. FFA management carefully considers the economic sustainability of the firm and is transparent in its communications with employees about billings. FFA's office is LEED Certified for Commercial Interiors. FFA communicates its sustainability practices and the accomplishments to its clients, potential clients, and general public. All FFA public sector marketing materials are printed on post-consumer recycled content paper and all marketing materials have a "please recycle logo" located at the bottom of the page.

Future Goals:

- Purchase laptops for all Project Managers in lieu of personal computers.
- Attain "Gold" Certification with Sustainability at Work.

STAFF AWARENESS

FFA supports staff sustainability education and awareness. The company supports employee green building certification by offering study materials for LEED GA and AP specialty tests, lunchtime test study sessions, and paying for these exams upon successful completion. FFA offers support for participation in sustainability design competitions in the form of design reviews and weekly hours.

FFA communicates sustainability objectives office-wide, to new employees and potential hires. Information on the sustainability policy is available in the employee handbook, sustainability emails, and is discussed at weekly officewide coffee-breaks. FFA has a Sustainability Committee that works toward improving office sustainability measures and increasing awareness. This committee organizes lunch-and-learns and lunchtime movies.

Future Goals:

- Offer annual financial support for outside trainings, conferences, and educational courses in the form of a \$500 grant.
- 50% of staff are LEED GA, at minimum.







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CERTIFICATIONS & RECOGNITIONS

2005

Pacific University Library, Forest Grove, OR — LEED Certified Interface Engineering T.I., Portland, OR — LEED Silver 2007

Vancouver Hilton Hotel and Convention Center, Vancouver, WA — LEED Certified 2009

Library! At Cole & Ustick, Boise, ID — LEED Gold Cascade Station Corporate Center, Portland, OR — LEED Gold White Stag Block/ UO Portland, Portland, OR — LEED Gold

2010

Henry M. Jackson Memorial Visitor Center, Mt. Rainier Nat'l Park, WA — LEED Silver equivalent FFA Architecture and Interiors, Office T.I., Portland, OR — LEED Certified

2011

Petworth Neighborhood Library Rehabilitation, Washington, DC — LEED Silver OSU Furman Hall Rehab, Corvallis, OR — LEED Silver Equivalent

2014

The Parker Apartments, Portland, OR — LEED 2009 for Homes, Platinum

2015

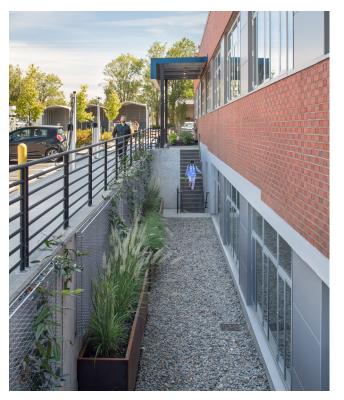
PGE Portland Service Center, Office Building, Portland, OR — LEED 2009 BD+C Gold Nampa Public Library, Nampa, ID — Green Globes Certification Rating = 3 Globes City of Portland Fire Station 21, Portland, OR — LEED v3 versus v4 Comparison Study Library! At Bown Crossing, Boise, ID LEED v3 versus v4 Comparison Study

2016

Library! At Bown Crossing, Boise, ID — In Construction, pursuing LEED v4 BD+C Silver 10th & Yamhill SmartPark Garage Redevelopment, Portland, OR — Tracking USGBC ParkSmart and LEED Gold 21 Astor Mixed-Use, Portland, OR — In design, tracking LEED 2009 for Homes Platinum **2017**

Hammer & Hand Headquarters, Portland, $\mathsf{OR}-\mathsf{Tracking}$ Passive House and Net Zero







APPENDIX I- SUSTAINABILITY WORK PLAN

I. SCOPE DEFINITION

- Introduce and advocate for 2030 benchmark at project kick-off meeting
- Identify broad sustainability goals
- Discuss various potential certification systems
- Identify special efforts and fees required (energy modeling, daylight simulation, analysis)

II. PREDESIGN/ PROGRAMMING

- Assign sustainability point person for project
- Conduct Site Analysis Checklist
- Research potential strategies and incentives
- Present strategies to client
- Establish energy baseline and goals
- Begin massing and orientation studies
- Register for building certification(s)
- Establish (Owner Project Requirements) OPR
- Integrate Sustainability goals into project schedule/ calendar

III. SCHEMATIC DESIGN

- Host Design Charrette
- Identify target EUI & conduct:
 - Shoebox energy model
 - Façade optimization studies
 - Daylighting studies
- Perform cost/benefit analysis of strategies and systems
- Investigate system options
- Identify materials, products and equipment that meet sustainability objectives
- Develop the BOD (basis of design) by using the OPR and additional research
- Integrate sustainability goals and BOD into Draft

Outline Specifications

- Begin tracking Sustainability benchmarks
- Complete Sustainability Project Implementation
 Checklist for S.D. phase
- Review Sustainability goals against project workplan/ calendar and refine as necessary

IV. DESIGN DEVELOPMENT

- Refine research:
- Cost/benefit analysis of strategies and systems
- Select systems
- Select materials, products and equipment that meet sustainability objectives
- Coordinate consultant team to integrate the established OPR, BOD, target EUI and other sustainability goals into project design and specifications
- Initiate Energy Model, if included in project scope
- Track Sustainability benchmark and target EUI
- Integrate Sustainability goals in Outline Specifications
- Complete Sustainability Project Implementation
 Checklist for D.D. phase
- Review Sustainability goals against project workplan/ calendar and refine as necessary

V. CONSTRUCTION DOCUMENTS

• Implement research:

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Design and detail selected systems

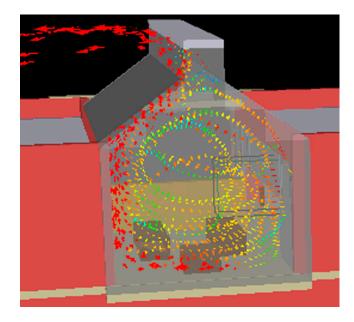
- Design and detail using selected materials, products and equipment that meet sustainability objectives
- Coordinate consultant team and integrate the established OPR, BOD, target EUI, and other sustainability goals into project design and specifications

2030 CHALLENGE INFORMATION

The 2030 Challenge was first issued in early 2006 by Architecture 2030 founder, Ed Mazria, to reduce buildings' contribution to greenhouse gas (GHG) emissions and prevent climate change average temperature from rising more than 2 degrees above preindustrial levels. It establishes the benchmark of zero GHG emissions by 2030 with 10% incremental reductions every five years. (These are based on a reduction from the typical building type in the same region or country.) The current metric requires a 70% reduction. The Challenge has been widely adopted by governments, industry and the AIA which issued its own 2030 Commitment.

SITE ANALYSIS CHECKLIST:

- Wind rose data
- Sun angle information
- Wet-bulb, dry-bulb, heating degree days
- View corridors and opportunities
- Ecological resources
- Topography, drainage patterns, water resources
- Cultural factors



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- Verify that energy modeling and performance goals are maintained
- Incorporate Sustainability goals, materials, and products into Specifications
- Track Sustainability benchmark and target EUI
- Complete Sustainability Action Plan Project
 Implementation Checklist
- Perform documentation for building certification systems, if applicable

VI. QA/QC PROCESS

- Complete Sustainability Project Implementation
 Checklist
- Verify Sustainability goals, materials, and products are correctly included in Specifications and documented in drawings.

VII. CONSTRUCTION ADMINISTRATION

- Emphasize sustainability goals at pre-construction conference
- Conduct building certification pre-con meeting, if applicable
- Confirm that Sustainability design intent is carried out while conducting site observations, responding to RFI's and reviewing submittals and change orders
- Perform Commissioning Activities, if applicable
- Continue documentation for building certification systems, if applicable
- Track Sustainability benchmark and target EUI

X. POST OCCUPANCY

- Present client with O&M's
- Perform building-user education programs
- Conduct post-occupancy evaluation
- Track target EUI against actual EUI
- Compile project's Sustainability Information in FFA database
- Report project to AIA 2030 Ddx
- Complete any final building certification documentation

DESIGN RESOURCES

E.U.I. BENCHMARK RESOURCES:

Commercial Building Energy Survey (CBECS)

http://www.eia.gov/consumption/commercial/

Energy Star Portfolio Manager

https://www.energystar.gov/buildings/facilityowners-and-managers/existing-buildings/useportfolio-manager

PRODUCT & MATERIAL RESOURCES

Cradle to Cradle

http://www.c2ccertified.org/

Declare- International Living Futures

https://living-future.org/declare

2030 CHALLENGE

Architecture 2030 Home

http://architecture2030.org/2030_challenges/2030-challenge/

2030 Palette

http://architecture2030.org/programs/2030-palette/

APPENDIX II- FFA SUSTAINABILITY POLICY

ENERGY

FFA supports reducing energy use through improved efficiency and alternatives.

- General office lighting is compact fluorescent set on photo-sensors that dim the light levels with daylight. • Occupancy sensors turn lighting off when spaces are un-used at night and on weekends.
- All equipment including copiers, printers, computer terminals, and monitors is Energy Star certified. •
- All computers, monitors, and equipment are turned off at the end of each day. •

Future Goals:

- All new appliances and equipment purchased are to be Energy Star certified. •
- Computers and monitors are set to sleep after 15 minutes of inactivity. •
- All future purchased lamps and lighting to be LED. •
- Office to be surveyed by an engineer to look for opportunities to optimize energy efficiency.
- All newly purchased power strips to have occupancy sensors.

WATER

FFA supports reducing water consumption.

• Aerators are installed on all faucets to reduce water flow rates. Restroom aerators are 0.5gpm minimum and kitchen aerator is 1.5gpm minimum.

Future Goals:

- All new appliances purchased are to use less water than previous models. •
- FFA to recommend that building management replace existing flushometers with dual flush options. •
- Water usage to be metered. .

WASTE REDUCTION

FFA supports reducing the amount of waste that is sent to landfills by recycling, reducing paper waste streams, donating supplies, and repurposing materials.

- Copier Paper waste is reduced through duplex print default settings. •
- Staff are encouraged to reduce prints by reading emails and other documents on their computers. •
- Old and un-used Interiors Department and Construction Submittal materials are recycled or donated to local • organizations to be re-purposed for crafts.
- Billings and paystubs are distributed electronically. •
- Bins are located at desks and in break room to encourage recycling of glass, cardboard, paper, and plastics. • The recycling of these waste streams is monitored to ensure materials are placed in proper bins.
- Durable dishware is provided for employee use. •







Future Goals:

- FFA offers composting and or GoBox reusable take-out lunch container service.
- Copier/ printer paper waste is reduced through inputting pin for print retrieval.
- Re-usable coffee mugs are provided to all employees for coffee trips and meetings.
- Single sided printed paper is re-used to make notepads for employee use.
- Office dishes are used for catered meals.
- A reduction, repurposing, and recycling program for all materials and submittals is implemented and is outlined in specifications that include project close-out procedures.

TRAVEL

FFA supports sustainable travel options that reduce greenhouse gas emissions for both commuting and business related travel.

- A TriMet subsidy of 42% off monthly pass cost is offered to employees.
- The Pacific Building has a locked room for bicycle storage and there are two changing rooms available at the basement level of the building. FFA provides basic bike repair tools for its cycling commuters.
- Incentives are not offered toward employee personal parking fees.
- FFA owns a hybrid company car that is available for employee use.
- Shared car service is available to all employees for travel (Zip Car membership).
- FFA participates in the BTA's Bike Commute Challenge.
- FFA website provides information about public transportation options that are available to our office.
- FFA offers a bicycle commuting cash subsidy equivalent to what is offered toward the TriMet pass.

Future Goals:

- FFA pruchases offsets company airline travel.
- FFA provides TriMet day passes/ tickets for business trips.
- FFA to recommend that building management provide showers for bicycle commuters.
- Video-conferencing capability is utilised for project site visits.
- Company vehicle to be donated to OPB or another non-profit at the end of its lifespan.
- FFA participates in the Stair Step Challenge.









APPENDIX II- FFA SUSTAINABILITY POLICY STAFF AWARENESS

FFA supports its staff in achieving sustainability goals through offering incentives toward certifications and competitions, and by disseminating information to all its employees and potential employees.

- Financial support for LEED GA and AP specialty testing is available to employees and study materials are provided.
- Mentorship and financial support for participation in sustainability related design competitions is offered.
- FFA communicates sustainability objectives office-wide, to new employees, and potential hires. Information on the sustainability policy is available in the employee handbook, sustainability emails, and staff meetings.
- FFA has a Sustainability Committee that works toward improving office sustainability measures and increasing awareness through lunch and learn events, movies, and study sessions.

Future Goals:

• FFA offers an annual \$500 grant for outside trainings, conferences, and educational courses related to sustainability

HEALTH/ WELLNESS

FFA supports the health and well-being of its staff.

- Health insurance, a cafeteria plan, and short term disability insurance are provided to all employees.
- FFA's office offers access to daylight and views from every desk.
- The Pacific Building has a rooftop outdoor terrace for lunches and breaks.

Future Goals:

- Plants are purchased for each employee's desk .
- A subsidy toward gym membership if offered to employees.
- Walking meetings and employee breaks are encouraged.
- Stand-up or adjustable desks are purchased so employees have more flexibility to choose between sitting and standing.

OUR WORK

FFA clearly communicates the value of sustainable design to clients throughout the design process.

• FFA maintains a database of sustainable projects, their certifications, list of sustainable strategies employed, EUI, and other relevant data.

Future Goals:

- Set design goal of meeting the 2030 Challenge benchmark with each client at the kick-off of every project.
- Host sustainable design charrette during schematic design for every project.
- Create project benchmarks during pre-design or schematic design and verify that these are being met at 100%





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Future Goals Continued:

- Include Post-Occupancy Studies as a standard Basic Service within all proposals.
- Work with the University of Oregon's Energy Studies in Buildings Lab and Energy Trust of Oregon.
- FFA is committed to an annual Day of Service with a local organization.
- 1% of employee billable hours is committed toward pro bono work.
- Employees are allotted 4 hours a month of paid time toward volunteering with professional organizations and/ or schools.

BUSINESS

FFA operates to maintain the economic sustainability of the business as well as support sustainable environmental and cultural practices through procurement and business strategies

- FFA's Sustainable Purchasing Policy considers both short-term and long-term purchasing objectives.
- The office is LEED Certified for Commercial Interiors.
- Sustainability practices and accomplishments are communicated to clients, potential clients, and the general public.
- Public sector marketing materials are printed on post-consumer recycled content paper and all marketing materials have a "please recycle logo" located at the bottom of the page.
- FFA management carefully considers the economic sustainability of the firm and is transparent in its communications with employees about billings.

Future Goals:

- FFA maintains Gold certification with the Sustainability at Work Program through the City of Portland.
- FFA selects financial advisors and investments that provide "green investment options"
- FFA will purchase laptops for Project Managers in lieu of personal computers





FFA ARCHITECTURE & INTERIORS, INC.

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