



International (OPEN/STUDENT) Design Competition

BEE / HOUSE / LAB design competition

[\[http://www.umanitoba.ca/sustainability/BeeHouseLab.html\]](http://www.umanitoba.ca/sustainability/BeeHouseLab.html)



Lyon, 1560 / Beekeeper, France, 1560. "Gravure montrant un rucher composé de ruches-troncs empilées deux à deux, et un essaim en formation prêt à être capturé par l'apiculteur, Lyon, 1560." www.vintageprintable.swisshelvetia.com

01. OVERVIEW

BEE / HOUSE / LAB, is an international design competition open to students and designers in the field of environmental design, architecture, landscape architecture, industrial design, and other related fields. The competition calls for a design of a bee house prototype that can be fabricated and deployed for field testing. Up to ten designs selected by the Design Jury will be fabricated (30 prototypes per design) and deployed (300 houses), to study their space-form-habitat performances.

The competition is hosted by the Office of Sustainability, and supported by the FABLAB at the Faculty of Architecture, the Department of Entomology and Parks Canada campus club, at the University of Manitoba. The University of Manitoba is committed to sustainable development and to using campus as a living lab. The university campus will be the primary deployment ground for the prototypes, and the results and the process of the competition will be published on various forms of media for the ongoing BEE LAB research and for the public awareness campaign purposes.



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02. BACKGROUND

Pollinator communities, including solitary nesting bees, are under pressure from habitat loss from urban development and landscape management practices including pesticide use. Pollinators play a critical role in the health of ecosystems. Small changes to human practices and mindfulness about habitat preservation can have a significant positive impact on pollinators.

Digital fabrication enables designers to engage the living research on bee habitat at the crossroads of environment science, engineering, computation, material science, and biology. Through digital design-modelling and prototype-fabrication, Digital Design and Fabrication can contribute to the living research focused on the space-form-habitat relationship at its micro scale.

03. DESIGN BRIEF

The competition calls for a BEE HOUSE PROTOTYPE that explores the space-form-habitat relationship of urban/campus bee habitat. The challenge of the competition is 1) to explore space-form-habitat relationship based on the design parameters for common native bee species [see below], 2) to design a BEE HOUSE PROTOTYPE, and 3) to design its fabrication (digital fabrication) methods and deployment scenario(s).

Design Parameters

- Overall size: Total volume of design no more than 8000 cm³ (approx. 20 cm cubic dimension)
- Mounting and cowl: Supported on one or two 2x2 wooden stakes that are 70-100cm in height. A cowl can be integrated into the design or a generic cowl can be part of the mount. Cowlings must allow air circulation (5 cm) above house and protrude 5cm from front face of house for shading. Cowl may cover sides of house (necessity/extent dependent on design of house)
- Number of bee holes: 80-100 for each house
- Size of bee holes: Finished dimensions (allowing for swelling of material, if applicable) should be a mix of 3, 5, 7 and 9 mm diameter to accommodate a range of native species (about 10 different kinds of bees). Holes should be 10 cm deep and closed on the back. Should be level (i.e. parallel to the ground)
- Spacing of bee holes: Minimum of 3 mm between holes. No voids for ingress of parasites between bee holes (e.g. stacks of straws not acceptable, as space between tubes allows parasites).
- Form: House needs to be able to be opened for cleaning/inspection (typically accomplished with a sandwich-type construction). Disassembly/reassembly must be able to be completed using basic hand tools (e.g. screwdrivers, pliers) and not degrade the house for future reuse
- Materials: Opaque wood (preferred by bees)(not cedar) or plastic or polystyrene
- Finish: Weather-durable exterior, such as latex paint, stain, varnish, urethane. Natural finish (unfinished) may be acceptable for plastics. UV stable.
- Colour: Bees prefer houses that mimic colours/patterns of flowers – vibrant colours (but not red as bees cannot see red) and broken patterns are ideal



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04. DESIGN JURY



Joyce Hwang

Joyce Hwang is an Associate Professor of Architecture at the University at Buffalo, SUNY, and the Director of Ants of the Prairie, an office of architectural practice and research that focuses on confronting contemporary ecological conditions through creative means. Currently she is developing a series of projects that incorporate wildlife habitats into constructed environments, including recent projects “Bat Tower” and “Bat Cloud.” She is a recipient of the 2014 Architectural League Emerging Voices Award, the 2013 New York Foundation for the Arts (NYFA) Fellowship, and has received grants from the New York State Council on the Arts (NYSCA), Awesome Without Borders, the Baldy Center for Law and Social Policy. She was awarded a residency at the MacDowell Colony, where she was selected as a National Endowment for the Arts Fellow.



Michael Loverich

Michael Loverich co-directs, together with Antonio Torres, Bittertang, a small design farm. Founded in 2005, Bittertang has created anamorphic and neotenuous projects ranging from living aquaculture orbs, stuffed animals, pinatas, and sukkahs. Bittertang strive to bring happiness and pleasure into the built world by referencing that pleasurable world which surrounds us. Our work explores multiple themes including pleasure, frothiness, biological matter, animal posturing, babies, sculpture and coloration all unified through bel composto. Our explorations are based in digital and visceral matter with output transitioning between scales and localities leaving our traces of frothy matter in various disciplines. In 2010, Bittertang received the League Prize for Young Architects and Designers by the Architectural League and was also selected as 1 of 12 finalists to build a sukkah for Sukkah City in Union Square. A duplicate sukkah was also built in Tel Aviv. In 2011 Bittertang's Burble Bup Pavilion was selected winner of the City of Dreams Pavilion Competition.



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04. TECHNICAL ADVISORY (University of Manitoba)

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|----------------------------------|---|------------------------|
| Office of Sustainability | / | Ian Hall |
| FABLAB + Faculty of Architecture | / | Kim Wiese & Jason Hare |
| The Department of Entomology | / | Dr. Rob Currie |
| Environmental Design + STUFF | / | Jae-Sung Chon |

05. SCHEDULE

- Announcement: March 1st, 2016
- Q & A: March 1st – March 24th, 2016
- Registration: March 31st, 2016 [Midnight, CST]
- Submission: April 20th, 2016 [Midnight, CST]
- Results: April 25th, 2016
- Prototype production: April 25th – May 15th, 2016
- Deployment: May 15th – May 30th, 2016

07. ELIGIBILITY

[OPEN]

- Open to professionals, practitioners, researchers and academics in relevant fields (i.e.: environmental design, architecture, landscape architecture, and industrial design).
- Team or individual
- Interdisciplinary team is not a requirement but encouraged

[STUDENT]

- Full-time students registered at a post-secondary (or equivalent) education programs in relevant fields of design (i.e.: environmental design, architecture, landscape architecture, and industrial design).
- Individual or team (no limit in number)
- Interdisciplinary team is not a requirement but encouraged

08. REGISTRATION

[March 31st, 2016]

- All entries MUST register through the competition website:
[\[http://www.umanitoba.ca/sustainability/BeeHouseLab.html\]](http://www.umanitoba.ca/sustainability/BeeHouseLab.html)
- Registration Fee (not refundable):
 - Student \$15.00 CAD
 - Open \$50.00 CAD
- An unique entry number/ID will be assigned to each registration
- In the case of multiple entries, each submission MUST be registered separately and obtain a separate Registration ID
- Registration ID will be used during the competition administration and on the **Design Document**



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09. SUBMISSION

- All submissions are to be emailed to [beehouselab@umanitoba.ca]
- The Registration ID MUST appear in the **Subject Heading** of the submission email
- Two separate PDF files (Design Document and Project Document) are to be attached to the submission email
- Total size of the attachments should NOT exceed **10 MB**

[Submission Requirements]

Design Document

- Registration number/ID MUST be graphically integrated on bottom right corner(s) of the board(s)
- The document may NOT contain any other forms of identification
- A single PDF file with up to **FOUR 11" x 17" (279mm x 432mm)** sheets in 'landscape' format pages can be used for the Design Document
- Graphic illustrations of the proposal, including critical dimensions, material(s), and the fabrication and installation scenario(s)

Project Document

- Registration number/ID MUST appear at the top left corner of the document
- The document MUST NOT contain any other forms of identification
- Project description (max. 300 words)
- A single PDF file with **ONE 8.5" x 11" (or 215.9 mm x 279.4 mm)** sheet in portrait orientation

10. DESIGN/JUDGING CRITERIA

- The 'explorative' and 'imaginative' space-form-habitat relationship of the prototype
- The 'functional' and 'habitat-field-test-readiness' of the prototype
- The 'innovative' and 'imaginative' use of material and fabrication technology of the prototype
- The 'constructability' and or 'fabrication-readiness' of the prototype

11. PROCESS / RECOGNITION / DOCUMENTATION / RESEARCH

- There will be no CASH AWARDS
- The Design Jury will select up to 10 proposals (up to 5 from each open/student) through a 'blind jury'
- One public favourite proposal will be chosen through an online voting
- Up to 30 prototypes of selected proposals will be fabricated for deployment
- All deployed prototypes (approximately 300 total BEE HOUSES) will become a part of ongoing BEE LAB research and public awareness campaign
- A set of separate RECOGNITION(S) may become available through sponsorship (which may involve a cash value) on a later date



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12. GENERAL TERMS AND REGUALTIONS

- Official language of the competition is English
- All entry will/must remain anonymous throughout the adjudication process
- All entrants MUST register online, using the competition website [beehouselab.umanitoba.ca]
- By registration and submission the entrant agrees with the general terms of the competition
- It is the sole responsibility of the entrant to read and follow the conditions of the competition including, eligibility, submission requirements and the GENERAL TERMS AND REGUALTIONS before the registration
- No refunds will be issued after registration
- By submission the entrant agrees offer the University a licence to fabricate up to 100 units of the design, for research and education only (or ongoing non-commercial use)
- Upon request, Technology Transfer Office (TTO) at the University of Manitoba may offer assistance towards design patent filing
- The selected designers will work with the technical advisory and research team to finalize the design for fabrication
- Unless requested otherwise, the FABLAB at the University of Manitoba will assist and facilitate the production of the 'working-fabrication drawing/file', under the control of the designer(s), based on its equipment and available materials
- The credits for the first prototype design will remain/belong to the designer/author(s) at all times
- The credits for fabrication and modification will remain/belong to the University of Manitoba and the research team after the fabrication
- The physical prototypes may become subjected to modification/alteration after their first generation field test
- The designers/authors will be informed (and/or in consultation) up to the first 'major' modification (second generation of the prototype)
- After the first 'major' modification the research team holds the sole right to alter/modify the prototype without consulting the designer/author of the first prototype design
- The physical prototypes will become a part of the research property of The Bee Lab at the Department of the Entomology
- All submissions and the selected proposals and their physical prototypes will be subjected to public/media awareness campaign and ongoing research
- All aspects of the competition process and the ongoing research will be subjected to public media and promotion to raise public awareness and education
- All submissions will be recognized as a participant of the BEE HOUSE LAB and its ongoing research
- All funds raised through the competition process (including registrations, sponsorships and donations) will be recognized as a fund contributed to the ongoing research and promotion of the BEE HOUSE LAB



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13. ORGANIZATIONAL CONTEXT

University of Manitoba Campus

The University of Manitoba is committed to sustainable development and to using campus as a living lab. The University is home to an exceptional Faculty of Architecture, a proud history of agricultural and entomological research and innovation and many active student groups focused on sustainability.

Office of Sustainability

The University of Manitoba, Office of Sustainability is a champion for sustainability efforts in university, regional, and national and global affairs through collaboration with students, faculty, staff, local community and partners across higher education. The Office serves as an engagement hub, facilitating sustainability learning and practice and working as a catalyst for change by partnering to share knowledge, foster a culture of sustainability, and integrate sustainability into practice and use the campus as a living laboratory for innovation. [<http://www.umanitoba.ca/sustainability>]

Department of Entomology

The Department of Entomology is the largest academic unit in Canada devoted to basic and applied studies in insect biology. The Bee Lab at U of M, has been active doing basic and applied research on honey bees and other pollinators since 1918. It is currently headed by Dr. Rob Currie who specializes in bee biology, bee behaviour and the effects of parasites and disease on bee health. [<http://umanitoba.ca/afs/entomology>]

FABLAB - Faculty of Architecture

FABLAB at the Faculty of Architecture is an interdisciplinary design research laboratory, which will support student education and community relations in the realm of digital craft. Design research at the FABLAB focused on fabrication and the link between digital forms of craft is establishing an identity through the disciplines of architecture. Weaving through multiple stages of the design process, digital craft is becoming a critical component to Architecture/Construction/Engineering (ACE), modelling, material studies, ecological mapping, systems articulation, through to visual theory. [<http://umanitoba.ca/faculties/architecture/fablab/fablabindex.html>]

STUFF

STUFF (Studio for Transformative Urban Forms and Fields) is design consultancy directed by Jae-Sung Chon which specializes developing ideative and generative design strategies and platforms for the 'living' and its 'environments'. Since 2012 STUFF has developed number of national/international competitions and exhibitions, and in 2012 STUFF co-curated/commissioned the Canadian entry to the 2012 Architecture Biennale in Venice. [<http://www.stuffgroup.net>]



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14. SUPPORTERS AND SPONSORS

Parks Canada Campus Club

The University of Manitoba Parks Canada campus club is part of a national network that aims to bring together youth from across Canada to experience, appreciate, protect, and promote Canada's natural and cultural heritage by: Organizing trips (to Parks Canada locations), Hosting activities(ie. camping, hiking, skiing, canoeing, visit historic sites.), Participating in local conservation efforts (bee house installation). [<http://www.pc.gc.ca/eng/apprend-learn/parcsavie-parkslife/cc.aspx>]



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