

# Crafting a Collaborative Curriculum

## The Design Build Initiative

Located on the Arabian Peninsula the on-going Design Build Initiative (DBI) at the American University of Sharjah presents an alternative model of full-scale pedagogy that privileges a collective approach to hands-on education woven into all levels of the curriculum. As such, this award submission is not for a single project or partnership, but rather an overarching faculty collaboration and resulting institutional process designed to address shortcomings in the academic design-build model common in North America. The initiative features a diverse, evolving faculty team of 6 to 8 members working together within a resilient infrastructural framework designed to overcome the excessive stress borne by individuals working in isolation.

In the most common design-build pedagogical model, a single faculty member leads 12 to 15 students while managing responsibility for all aspects related to client engagement, logistics, liability, accounting, construction supervision, and turn-key delivery. These responsibilities are extraordinary as well as physically and mentally exhausting. “The stresses upon faculty caused by excessive workloads, multiple roles, and project scope threaten structural collapse.” (Gjertson, 2011) Ultimately the disjunction between teaching load and project responsibility subverts long-term program sustainability as burn-out undermines curricular continuity. Even the most experienced DB teachers suffer. Dan Rockhill notes that, “When I stagger away from these projects, I think ‘There has got to be an easier way’.” (Kraus, 2017)



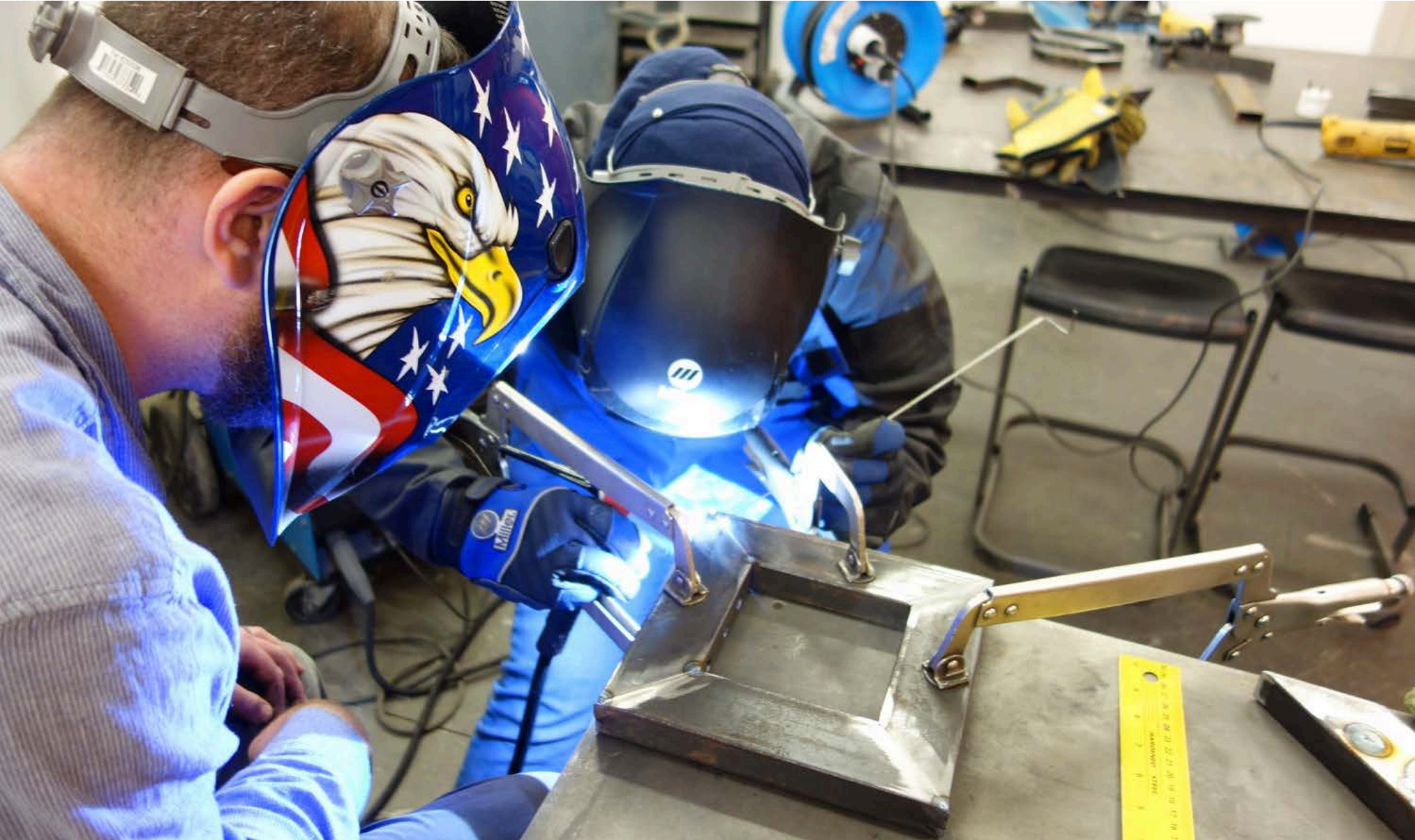
## Cultural Context + Community Engagement

Complicating matters, DBI evolved in a region unaccustomed to hands-on education and divorced from its own material culture. Following the discovery of oil in the 1950s vernacular craft traditions native to the Arabian Peninsula have been in decline. Exacerbating this situation, the normative approach to education and professional practice in the region segregates design from construction while treating architecture as a form of surface decoration geared toward women. While our university rejects these local conventions and operates as a fully co-ed institution the Architecture program remains 85% female and Interior Design is 98% female. In this context, DBI seeks to empower all students, regardless of gender, through direct engagement with instruments of making and by extension provide graduates with agency in the civic, social, and environmental evolution of the region.

The extensive ecosystem of non-profit partners common to collaborative design-build in the US does not exist in the Middle East where charity and fund-raising operate differently. In response, DBI works to engage four different types of community. At the most immediate level the College community serves as the primary user group, provides feedback on past projects, and informs programming. The focus on the immediate context transforms completed projects into a didactic learning environment. Students who have lived in and with previous projects bring those lessons to their work while also fielding input and commentary from the broader student body before and during design development.

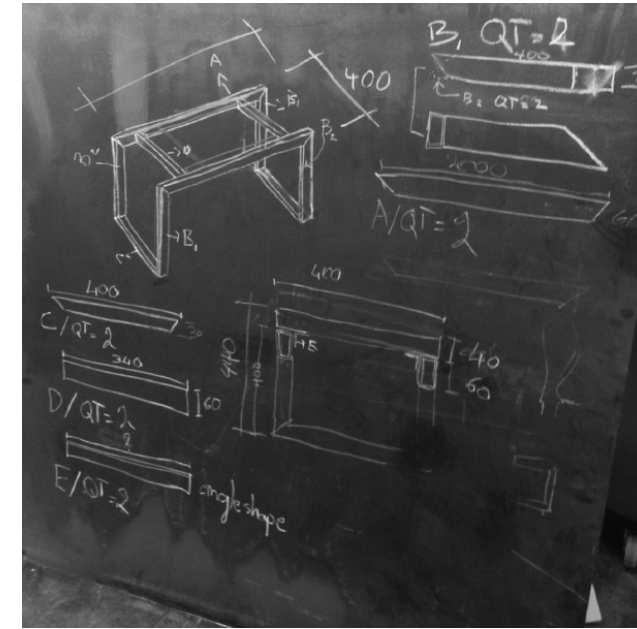
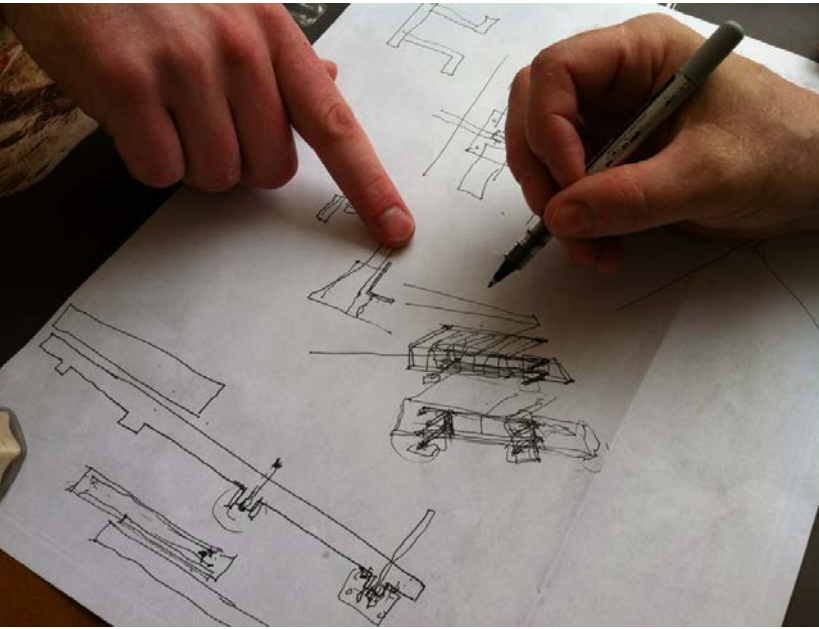
At the campus level the Dean serves as the institutional client while also providing advocacy with the upper administration. Campus planning and the facilities department provide mentorship and also serve as an analog to municipal zoning and building departments. Beyond campus, industry partners have collaborated to provide material donations and most importantly, mentorship. To date over thirty people representing over fifteen companies have contributed time, training, and expertise.





*One obstacle we face is that school curricula in the MENA region and the upbringing of youngsters today rarely include the making of things. How many have ever used a shovel to dig up a flower bed or whittle away with a knife at a piece of wood? Conditions are particularly challenging when it comes to incorporating practical aspects in higher education: Disciplinary boundaries discourage the mixing of theory and practice. Manual work is often looked upon as being lower status. Gender roles are entrenched. Architecture is often misunderstood as exterior aesthetics.*

Martin Giesen, Dean Emeritus, American University of Sharjah



Since 2014 visiting craftsmen have led 7-day metal fabrication workshops each year. The workshops, funded by the Design Build Initiative, build internal capacity by providing introductory and advanced training for students and faculty.

## Re-Constructed Curriculum

At this young school faculty were free to imagine Rockhill's 'easier way' without the burden of institutional tradition. The new institutional framework foregrounds a team-based approach, shared responsibility, curricular integration, and fluid teaching assignments that eschew individual entitlement or course ownership. Individual faculty members do not teach the same fabrication courses or design-build studios repeatedly. The relatively large pool of engaged faculty allows for a platoon system that keeps everyone fresh while also ensuring that participants teach non-DBI courses thereby defusing internal politics.

### Entry Level:

Intro Material Fabrication (analog)  
Intro Digital Fabrication  
Integrated Projects within Req'd Lecture Courses  
The Cube (Studio + Materials & Methods 1)  
The Wall (Studio + Workshop)

### Intermediate:

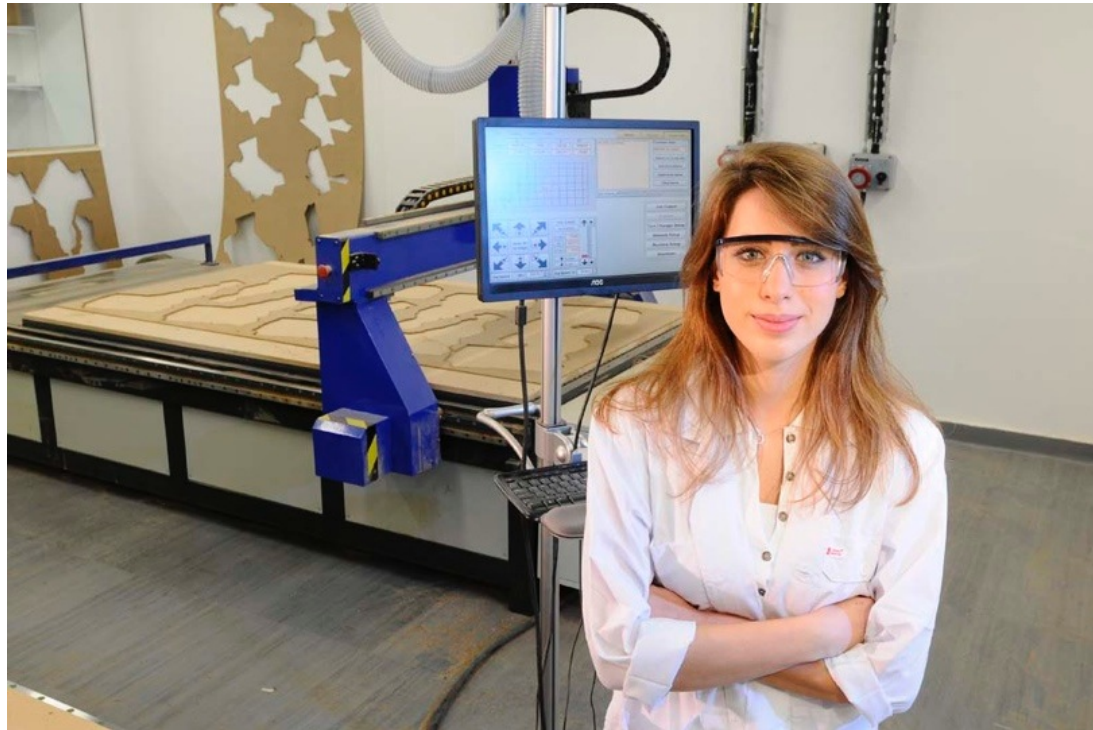
Advanced Material Fabrication (analog)  
Advanced Digital Fabrication  
Architectural Detailing  
Furniture Design

### Advanced

ID Design-Build Studio (required in 401)  
ARC Design-Build Studio (option in 401, 501 + 502)  
Prototyping  
Installations  
Small Buildings + Pavilions

### Extra-curricular

Metal Fabrication Workshops  
Jean Claude and Cristo Award  
Faculty Skill-Building Grants



Digital Fabrication Labs at the American University of Sharjah

## Capital Infrastructure + Funding + Outcomes

Completed in 2011 a host of new fabrication labs provided the foundation necessary to support the new DBI program. Without access to grants and non-profit partners the department applied for and received \$80,000US in annual support from the provost's "Special Initiative Funding."

Over the first ten years twelve DBI faculty have led hands-on studios and elective seminars. Completed projects have been recognized with three ACSA Design-Build awards, three JAE publications, and eight regional AIA design awards. Notably, each of the three ACSA award-winning projects was led by a different faculty member.

The DBI experiment exemplifies an "easier way" to conduct full-scale pedagogy. Working collaboratively the faculty team successfully resolved many of the "five issues and challenges... present, to varying degrees in all" design-build programs." (Canizaro, 2012) Collegial and administrative resistance, equipment and facilities, funding and quality of work have all been addressed to a great degree. Stress still exists, but participating faculty now operate within a supportive network of empathetic colleagues.



The Cube Project: Fabrication Module embedded in the required Materials + Methods 1 lecture course for 2nd year students. Led by Prof. Michael Hughes



Introduction to Material Fabrication: Elective for 2nd and 3rd year students. Led by Asst. Prof. Daniel Chavez

*One of the most creative parts of the Design Build Initiative is its diversity and reach within the curriculum. Inserted into each year level and multiple teaching formats this sustained, incremental, and consistent exposure to making radically transforms conventional notions of design-build and contemporary design education. Mapped over its ten-year history the holistic approach to full-scale fabrication in architectural education is, to my knowledge, without precedent. The traditional burden of a single design-build faculty member is replaced with a much larger faculty collaborative, thereby eliminating the isolation many teachers, including myself, experience as the sole design-build advocate on a faculty.*

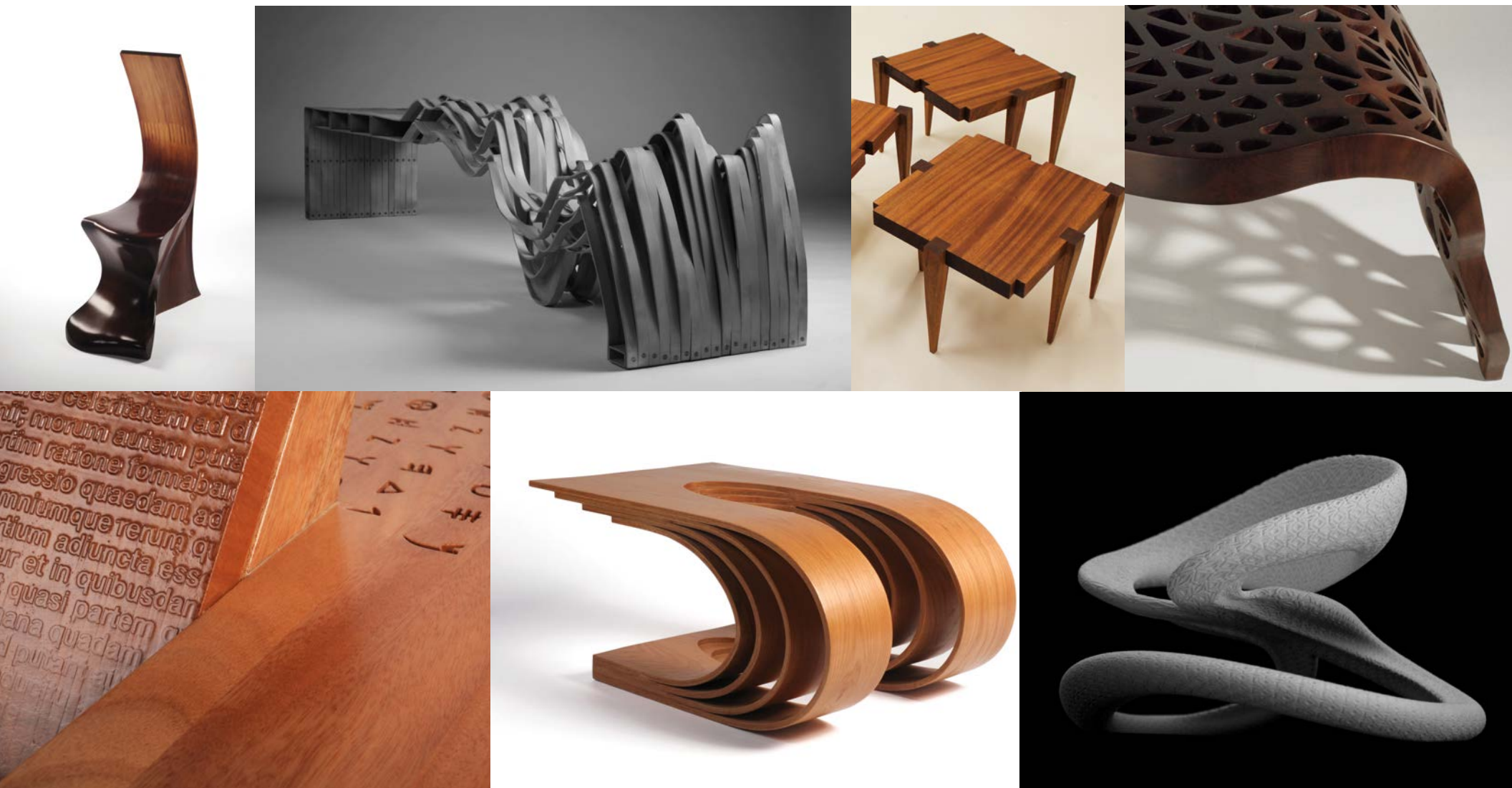
Rick Sommerfeld, Director of the Colorado Building Workshop  
2015 DBI Final Review Critic



Introduction to Digital Fabrication: Elective for 2nd and 3rd year students. Led by Assoc. Prof. Marcus Farr, Asst. Prof. Matt Trimble and Assoc. Prof. Greg Spaw

*Over the past 10 years the Design Build Initiative has moved the conversation around full-scale education into exciting new directions that challenge us to fundamentally rethink the scope of design-build pedagogy. By looking beyond the typical, one-off project the faculty found a way to introduce hands-on learning to the scale of curriculum and infrastructure by embedding this important heuristic technique of thinking + making throughout the very core of their collective academic mission. The scope of this achievement is shocking in that it operates beyond the individual DB projects that have become familiar thereby reanimating debate on the nature of design-build education that many see as fixed or calcified. It is not uncommon to hear administrators and academic colleagues dismiss design-build as something we already know and therefore unworthy of further examination, but the faculty's efforts at the American University of Sharjah subvert that tired, if not lazy, claim.*

Terry Boling, Professor, University of Cincinnati  
2017 DBI Final Review Critic



Advanced Material Fabrication: Elective for 2nd and 3rd year students. Projects exhibited at the 2012 Milan Furniture Fair. Led by Assoc. Prof. Bill Sarnecky

*Design-build education is familiar to the ACSA membership in North America, but in 2012 it was unheard of in the Middle East. Further, regardless of location and context it is truly rare to see design-build addressed in such a thoughtful and incremental manner rather than as a stand-alone option studio. Qualitatively, the work is of extraordinary beauty – and diverse.*

John Folan, Professor and Head of Department, University of Arkansas  
2014 + 2022 DBI Final Review Critic





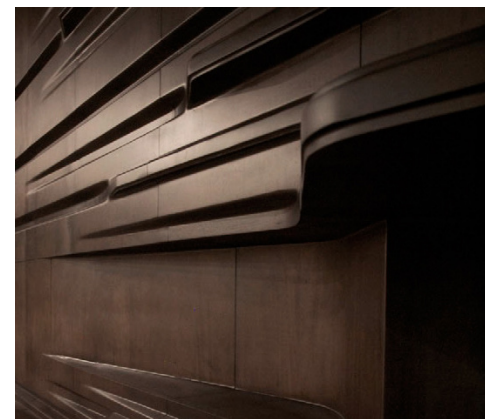
*Advanced Digital Fabrication: Elective for 3rd, 4th and 5th year students. Led by Assoc. Prof. Greg Spaw and Assoc. Prof. Ammar Kalo*

*As both an alumnus of the BArch program (class of 2008), a current faculty member, and Associate Dean at AUS I am uniquely positioned to offer an incisive perspective on the impact of the Design Build Initiative taking place in the Department on both the faculty body and the students. A wide range of faculty members, particularly junior faculty, have been provided with the teaching opportunities, budget, and guidance necessary to begin or expand their fabrication-based scholarship. Amongst all the successes, perhaps most surprising has been the high degree of collegiality and sustained collaborations amongst faculty members that continue to take place from seeds sown within the Design Build Initiative. As for the students, the Initiative provides a platform for early on-site experience that positions them well as they begin their careers in architecture and the allied fields.*

Faysal Tabbarah, Associate Professor and Associate Dean, American University of Sharjah



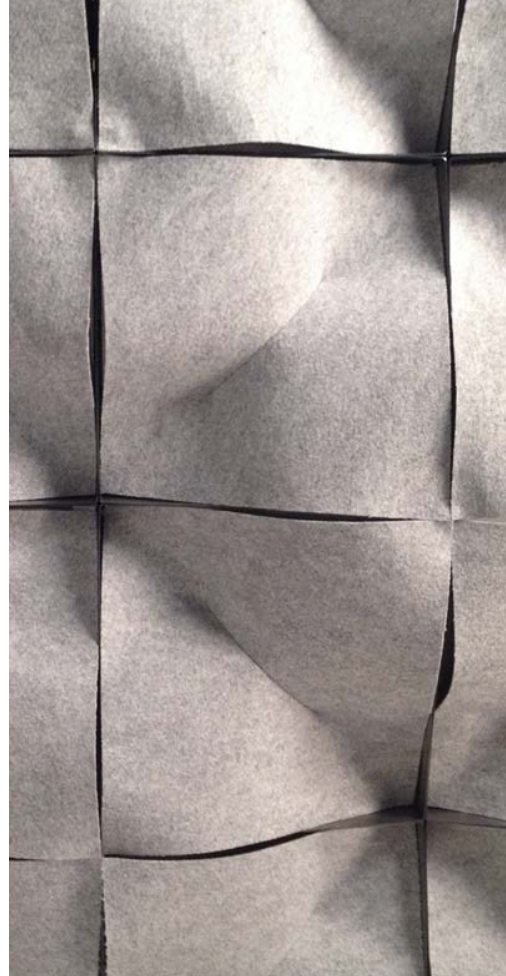
5th year Architecture Design-Build Studio: Display Wall, 2012-2013. Led by Assoc. Prof. Bill Sarnecky. AIA Middle East Design Honor Award





4th year Interior Design Design-Build Studio: Reclaimed Wall, 2015. Led by Asst. Prof. Daniel Chavez. AIA Middle East Design Honor Award





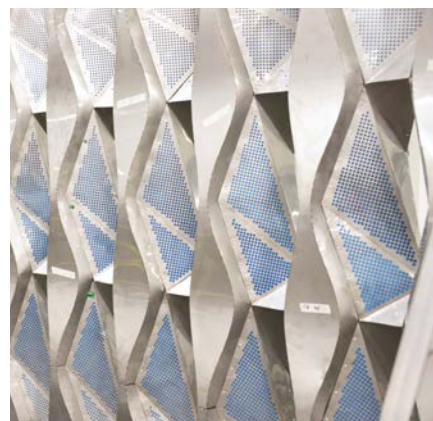
5th year Architecture Prototyping Studio: Acoustic Augmentation. Fall 2013. Led by Asst. Prof. Emily Baker

*Having participated in design-build as a student in the US and spent my graduate years engaged in prototyping and full scale making, I knew that the organizational framework and administrative vision were just as important as the facilities and outcomes, but only after moving away from Sharjah to continue my career in the US can I fully appreciate the scope of this truly extraordinary collaborative achievement in hindsight. Too often design-build faculty, particularly junior faculty in need of mentorship, are left to succeed or fail on their own. The experience can be lonely in the short run and devastating when it comes time for tenure and promotion. In my case the prototyping studio was particularly useful as it allowed me an entry point to full-scale teaching within a bracketed set of expectations informed by professional collaborators with acoustic and structural engineers. Success at this scale led to a subsequent project with a larger, more complex scope. Operating within the collaborative DBI framework during the first years of my teaching career provided opportunity, support and structure that I leveraged to produce peer-reviewed scholarship in the form of paper published in the JAE and an ACSA Design-Build Award.*

Emily Baker, Assistant Professor, University of Arkansas



5th year Architecture Design-Build Studio: Acoustic Wall. 2014. Led by Asst. Prof. Emily Baker. ACSA Design Build Award + AIA Middle East Design Award





5th year Architecture Design-Build Studio: AVM Pavilion, 2016. Led by Assoc. Prof. Ken Tracy. AIA Middle East Design Award





4th year Interior Design Design-Build Studio: Theater Under the Stairs, 2017. Led by Asst. Prof. Daniel Chavez. AIA Middle East Design Honor Award

*The impact of the initiative has extended beyond the Architecture program to reenergize our previously struggling Interior Design program. Through this transformative initiative, a nascent tradition of making has become fundamental to the identity of the ID program, the department and the college.*

Varkki Pallathucheril, Professor and Dean of the College of Architecture, Art & Design at AUS



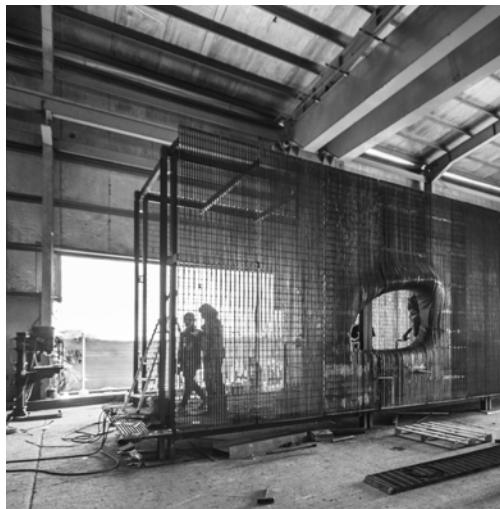
5th year Architecture Design-Build Studio: Work Pods. 2018-2019. Led by Assoc. Prof. Ammar Kalo. AIA Middle East Design Honor Award, A' Design Award and Architecture Masterprize Award.





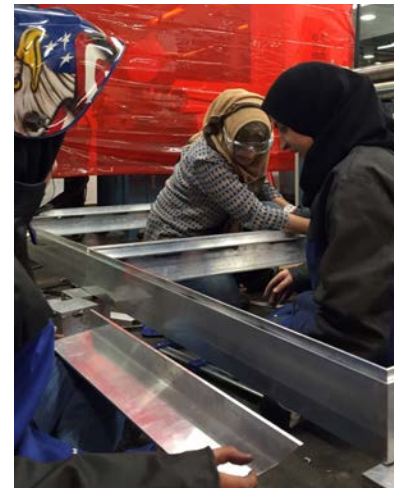
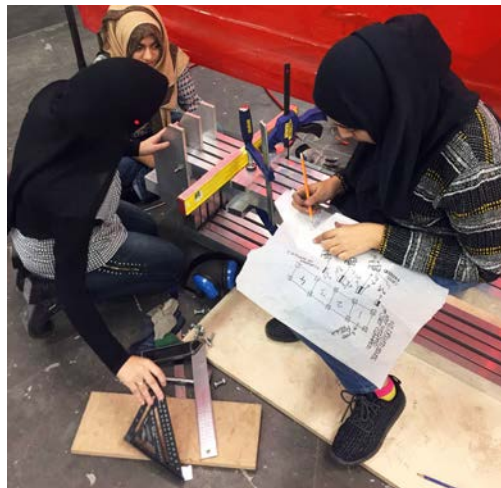


5th year Architecture Design-Build Studio: Gate House + Garden. 2018. Led by Prof. Michael Hughes and Assoc. Prof. Bill Sarnecky. ACSA Design Build Award + AIA Middle East Design Award





5th year Architecture Design-Build Studio: NeoNomads. 2020. Led by Assoc. Prof. Patrick Rhodes and Assoc. Prof. Greg Spaw. ACSA Design Build Award + AIA Middle East Design Award





Extracurricular: Completed by two 3rd year students under the mentorship of Asst. Prof. Emily Baker, Keswa won the 2015 Cristo & Jean-Claude Award sponsored by the Abu Dhabi Music and Art Foundation. 2015.

*The tangible evidence of achievement that advances architectural education can be found in the numerous awards bestowed upon the design-build projects. However, the intangible results of the Initiative may prove to have the greatest long-term impact. When reflecting on the importance of the collaborative contributions made by the participating faculty, I think about two young women from the Gulf region who have collaborated on design-build projects that have been recognized with a number of honors including the Christo and Jeanne-Claude Award. By demonstrating capability and confidence in design and construction, these young women have challenged preconceptions and gender norms prevalent in the region in profound ways. This is an achievement that, while firmly rooted within the discipline of architecture, transcends professional boundaries and will contribute to the transformation of a society.*

Kevin Mitchell, Professor of Architecture + Chancellor Emeritus, American University of Sharjah

**Project Title:** Display Wall, completed June 2013  
Role of Nominee (in the project): Led by Bill Sarnecky.  
Collaborators & Funding Sources: Partnered with seven local companies who provided design consultation, materials and installation for glazing, cast bronze elements, lumber and the curtain wall system. University Facilities provided electrical consultation and mentorship. DBI provided all other funding through a grant from the Provost's Office. Student Compensation. 34 students contributed to the project over 4 semesters in both a 6-credit studio course and a 3-credit seminar.

**Project Title:** Acoustic Wall, completed June 2014  
Role of Nominee: Led by Emily Baker  
Collaborators & Funding Sources: Acoustic engineer donated consulting services through workshops with the students. DBI provided all funding through a grant from the Provost's Office. Student Compensation 16 students contributed to the project for a 6-credit studio course.

**Project Title:** Reclaimed Wall, completed June 2015  
Role of Nominee: Led by Daniel Chavez  
Collaborators & Funding Sources Expenses: The municipal agency responsible for sustainability and recycling donated materials and mentorship. DBI provided all other funding through a grant from the Provost's Office.  
Student Compensation 15 students contributed to the project for a 6-credit studio course.

**Project Title:** AVM Pavilion, completed June 2016  
Role of Nominee: Led by Ken Tracy  
Collaborators & Funding Sources:  
Engineering mentor provide structural analysis and guidance. University Facilities provided planning support and construction mentorship. DBI provided all funding through a grant form the Provost's Office.  
Student Compensation. 16 students contributed to the project over 2 semesters in a pair of 6-credit studio courses.

**Project Title:** Theater Under the Stairs, completed June 2017  
Role of Nominee: Led by Daniel Chavez  
Collaborators & Funding Sources: DBI provided all funding through a grant from the Provost's Office. Student Compensation 15 students contributed to the project for a 6-credit studio course.

**Project Title:** Gatehouse + Garden, completed June 2018  
Role of Nominee: Led by Michael Hughes and Bill Sarnecky  
Collaborators & Funding Sources: Partnered with five local companies who provided design consultation, materials and installation for glazing, wood finishing, air conditioning, lighting, plumbing and electrical as well as specialized steel assembly. A US-based structural engineer donated time and expertise. Total of donations in terms of time and material were approximately \$55,000. University Facilities provided electrical and plumbing infrastructure. DBI provided the additional funding through a grant from the Provost's Office. Student Compensation: 19 students contributed to the project for two 6-credit studio courses and one 3-credit seminar.

**Project Title:** Work Pods, completed January 2019  
Role of Nominee : Led by Ammar Kalo  
Collaborators & Funding Sources: Metal fabricator and structural engineer donated consulting services through workshops with the students. DBI provided additional funding through a grant from the Provost's Office. Student Compensation: 34 students contributed to the project over 4 semesters for a 6-credit studio course.

**Project Title:** NeoNomads, completed June 2020  
Role of Nominee : Led by Ammar Kalo  
Collaborators & Funding Sources: Collaborated with environmental specialists and researchers from the local dept. of Env. And Protected Areas as well as the Architect of the Ruler's Office who provided the site. DBI provided all funding for materials and the hiring of a dedicated 'Clerk of the Works' for one semester. Student Compensation: 34 students contributed to the project over 4 semesters for a 6-credit studio course.

**Project Title:** Elective Seminars and Workshops, 2012-Present  
Role of Nominee: Michael Hughes, Marcus Farr, Greg Spaw, Juan Roldan, Camilo Cerro, Jason Carlow, Matt Trimble, Guest Mentors Jason Wright and Lance Mallette  
Collaborators & Funding Sources: Arkansas-based Modus Studio provided support for employees to lead a 10-day metal fabrication workshops on 12 occasions to date. DBI provided travel funding for that mentor and a second mentor who ran additional workshops. The Department of Architecture and DBI also provide a material budget for each seminar course and workshop.  
Student Compensation: Students in elective fabrication courses enroll in 3-credit seminars. Workshop participation is extracurricular and voluntary.

**DBI Collaborative Faculty Team:** Michael Hughes, Bill Sarnecky, Ammar Kalo, Patrick Rhodes, Ken Tracy, Daniel Chavez, Emily Baker, Marcus Farr, Greg Spaw, Juan Roldan, Camilo Cerro, Jason Carlow, Matt Trimble, and George Newlands.

#### References:

Canizaro, Vincent. *Design-build in architectural education: Motivations, practices, challenges, successes and failures. International Journal of Architectural Research: Volume 6, Issue 3.* 2012.

Gjertson, Geoff. House Divided: Challenges to Design/Build from Within. *2011 ACSA Fall Conference Proceedings.* ACSA: Washington D.C. 2011

Kraus, Chad. Designbuild Education, Routledge, 2017