

**PCAF: Bachelor of Architecture (B.Arch)**

The initial PCAF for the Bachelor of Architecture degree was returned to the proposers as “not approved” on January 24, 2017 with the stipulation that “resource requirements must be addressed before approval to develop the full proposal can be granted.”

Since that time, Kim Wilber and I met with John Schmidt to share our concerns and to discuss possible ways those resources might be better planned for going forward. He and Diane Nagelkirk have since resubmitted the proposal with two major changes: 1) They moved the projected start date from Fall 2018 to Fall 2019; and, 2) Significantly reduced the projected start-up costs by more than 50%.

Given these revisions, and the earlier support as outlined by Kirk Weller when he approved the initial PCAF on 12/6/16 with concerns, I now approve the PCAF giving permission for the faculty to develop the full proposal with the understanding that, over the next two budget years (2017-18 and 2018-19), the proposers work with the account clerk in the College of Engineering Technology, Kim Wilber and myself, to build the projected start-up costs into their budget for 2019-20.

Leonard Johnson  
4/20/17

## **PCAF: Bachelor of Architecture (B.Arch)**

The Architecture and Facility Management faculty in the College of Engineering Technology propose creation of a new Bachelor of Architecture (B. Arch) degree. The proposed degree will ladder from the existing two-year AAS in Architectural Technology (ARCH) and incorporate courses currently offered in the BS curriculum in Architecture and Sustainability (ARST). The program will be organized into three phases. Phase I will serve as the foundation; it will mirror the current AAS curriculum. Phase II will comprise the core; it will reflect the current BS. Phase III will be for advanced studies; students will learn about architectural design, architectural practice, and the history and theory of architecture and urbanism.

The current BS program prepares students for graduate study, specifically, the M.Arch degree. The proposed B.Arch goes beyond that; it enables students to take the architecture licensure examination. In order for an individual to be a practicing architect, he/she must be licensed. In order to sit for the licensure examination, an individual complete either the B.Arch or M.Arch degrees. This is not to say that our AAS or ARST students don't get jobs; they do. They have more limited options.

Although there are Michigan colleges and universities with four-year architecture programs, none currently offers a B.Arch. In addition to being the only college/university with a B.Arch, should the curriculum be adopted, there is a financial advantage to the B.Arch over the M.Arch. The former is five years; the latter is six. The former falls under an undergraduate tuition schedule; the latter falls under a graduate school tuition schedule. Thus, a students who earns a B.Arch can, in both less time and lower cost, earn a job-ready degree that leads to professional licensure.

Initial start-up costs, which include the addition of one tenure-line faculty member, are about \$250,000 (this includes benefit costs, which the proposers didn't include in their table on page F-5) and on-going annual costs of roughly \$170,000 (this includes benefit costs). They anticipate 24 additional students beyond the number currently enrolled in ARST. At 24 credits per year, this translates into revenue of approximately \$225,000. Diane provides different revenue estimates that are higher. Her estimates, both for cost and for revenue, appear in the tables on pages F-4, F-5, and F-6. Her revenue projections are based on total enrollment for all architecture-related programs (AAS, ARST, proposed B.Arch).

I support the program for the following reasons:

- It would be the only B.Arch program in Michigan.
- Addition of the program enhances the profile of CET.
- The program provides a flexible, useful, job-ready option for architecture students.
- The program provides opportunities for enrollment growth in the unit.

Despite my support, there is a funding issue. While Larry supports the idea, he isn't sure about whether CET can fund line items not covered by Academic Affairs. I share that concern.

Kirk Weller  
12/5/16

## Form PCAF – Preliminary Curriculum Approval Form

Effective Fall 2015

Directions: This form should be completed using 11-point font or larger, and should be no longer than six pages (excluding the signature/comment pages and references). For purposes of expediting the preliminary approval process, forms may be forwarded electronically by the initiator and from one administrative level to another.

Name(s) of proposal initiator(s): Diane L. Nagelkirk, Program Coordinator
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Department(s)/College(s): Architecture and Facility Management (ATFM) / Engineering Technology
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Type of curriculum change (check one):

<input type="checkbox"/> New minor requiring new courses/resources
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<input type="checkbox"/> New Concentration in existing degree/program
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<input type="checkbox"/> Curricular customization of existing program for off-campus cohort group
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<input type="checkbox"/> New certificate requiring 3 or more new courses and/or new resources
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<input type="checkbox"/> Existing program redirection or shift in emphasis if 3 or more new courses and/or new
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1. Name of degree, major, concentration, certificate, or minor. Briefly describe the curriculum plan/template. New degree = Bachelor of Architecture (B.Arch). We wish to offer a Bachelor of Architecture degree (B.Arch) that will seek and attain accreditation by the National Architectural Accrediting Board (NAAB). The B.Arch is the first of three Professional degrees accredited by NAAB; the other two are the Master of Architecture (M.Arch) and the Doctor of Architecture (D.Arch). The proposed B.Arch will be a 3-year program that ladders from the existing 2-year AAS in Architectural Technology (ARCH), and will incorporate courses currently offered within the B.S. in Architecture and Sustainability (ARST) program. The proposed 2+3 model will culminate in an accredited B.Arch degree that will be comprised of two foundation years (Phase I), two core years (Phase II), and a fifth year (Phase III). Phase I (foundation years) will mirror the current AAS curriculum and include: studios in the architectural design process; design principles and graphics; study of architectural history; study of sustainable building materials, detailing and methods of construction. Phase II (core years) will mirror the current BS curriculum and include: design studios that address the relationship between client needs, program, space, form, structure, and site. During the core years, student understanding of sustainability expands through exploration of historic preservation, as well as architectural and community context; study of environmental building technology, structural design, interior design, as well as architectural electives that allow for individual exploration in specialized areas of interest. Phase III (fifth year) will focus on advanced studies in architectural design, architectural practice and the history and theory of architecture and urbanism. Admission to the professional phases II and III (third through fifth years) of the program will be competitive and selective. The three-year professional core will emphasize the following areas: design/communication, history/theory, technology, professional practice, and electives. B.Arch degree programs require a minimum of 150 semester credit hours of academic course work in general studies (45 credit hours), electives (10 credit hours), and professional studies (as defined by the program). The required 150 semester credit hours will be attained within the proposed 2+3 model. Furthermore, the current BS in ARST degree (130 credit hours) will remain to provide students the option to enter the workplace or continue into a 2-year M.Arch program at another institution.

2. Target date for implementation. Fall ~~2018~~ 2019 (first graduating class in May of ~~2019~~ 2020)

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3. Briefly explain the rationale for this initiative. If the initiative involves customization of an existing program for delivery to an off-campus cohort group, also explain the nature of the proposed curricular customization. Three prime reasons for this proposal, in order of importance: (1) President Eisler has emphasized his desire for programs to review their time to completion and cost of degree. (2) Ferris' mission states that it "[Ferris] prepares students for successful careers, responsible citizenship, and lifelong learning. Through its many partnerships and its career-oriented, broad-based education, Ferris serves our rapidly changing global economy and society." (3) The accrediting body's (NAAB's) change of direction. Regarding the first point, most state registration boards in the U.S. require an applicant for licensure to have graduated from a NAAB-accredited program. The most common NAAB accredited degree options include a B.Arch or an M.Arch. B.Arch programs (minimum of 150 credit hours) are five years in duration, while M.Arch programs (minimum of 168 credit hours) are typically six years in duration. For our students, the path to becoming a licensed architect requires further education, typically an M.Arch degree. M.Arch programs, such as the well-respected program at the University of Michigan, add 60 to 90 credit hours beyond a BS degree and their in-state graduate tuition is approximately \$14,000 per semester. Considering tuition only, Ferris graduates attending U-M for a two-year M.Arch degree would require an additional investment of \$56,000 (tuition only) beyond the cost of our four-year B.S. degree. In comparison, the additional one-year of undergraduate work at Ferris would allow a graduate to sit for his or her licensing exam for approximately \$11,000 (tuition only) beyond the cost of our four-year B.S. degree. Regarding the second point, Ferris emphasizes having our graduates ready for employment upon graduation. While continuation in higher education for graduate degrees is a worthy goal, our focus is preparing career-ready graduates. Our current B.S. provides opportunity for students to succeed in the built environment professions without further education; however, becoming an architect requires a professional, NAAB-accredited degree. This proposal will provide that opportunity in line with our mission. Finally, regarding the third point, when the ATFM program looked at expanding degree options in 2009, NAAB was considering discontinuing B.Arch programs in favor of M.Arch programs. Therefore, the Ferris State faculty chose to develop a B.S. degree with the hopes of expanding to an M.Arch in the future. NAAB has since revised their stance and continues to recognize the validity of accredited five-year B.Arch programs. In addition to the time and economic advantages of the B.Arch degree, the practice-based focus of the B.Arch matches Ferris' focus on hands-on and career-focused education. Furthermore, students (many of whom are first-generation college admits) choose Ferris because of the friendly campus atmosphere and the convenient location of the Big Rapids campus. In summary, the offering of an accredited degree program is a strategic advantage and benefit for recruitment and retention, which will lead to a greater number of prospective students, and, thus, increased enrollment.
4. Are there similar programs at other Michigan universities? If so, where? What is the enrollment in the other programs? There are four institutions that offer accredited, architectural programs in the state of Michigan. Three are located in southeastern Michigan and one is located in southwestern Michigan. All four offer Master of Architecture (M.Arch) programs that consist of a minimum of 168 credit hours. In contrast, the offering of a 150 credit hour B.Arch program at FSU will provide students a viable option for licensure in terms of time and cost. Enrollment at existing M.Arch programs is: The University of Michigan, Ann Arbor (525 bachelor, master and doctorate level students); Lawrence Technological University, Southfield (580 bachelor and master level students); University of Detroit Mercy, Detroit (188 bachelor and master level students); Andrews University, Berrien Springs (115 bachelor and master level students). Kendall College of Art and Design launched an M.Arch program in the fall of 2014. The program is in candidacy for accreditation with an anticipated date of January 1, 2018. Current enrollment is 12 students.

5. Briefly explain any similarities of the proposed initiative (program objectives and/or curriculum) with already established FSU or KCAD programs: The proposed B.Arch program is related to and will build upon the AAS program in Architectural Technology and the BS program in Architecture and Sustainability. The B.Arch will continue with a similar concentration on the practice of architecture from a technical and applied perspective. The proposed program, however, will include topics at more advanced levels with greater emphasis on professional practice and integrated architectural solutions. The offering of the B.Arch will complete and fulfill the NAAB conditions for accreditation. The proposed B.Arch program also shares parallels to FSU's Facility Management (FM) and Construction Management (CM) programs in that they deal with the built environment; and with Kendall's M.Arch program. The proposed B.Arch program will deal with the inception and creation of buildings, while FM deals with the maintenance of buildings, and CM deals with the construction of buildings. KCAD's M.Arch program addresses content similar to that in the proposed B.Arch program; however, Kendall's focus and scope of course content is more design and theory focused. With the addition of the proposed B.Arch degree, FSU will comprehensively address all phases of the creation, making, practice and maintenance of buildings.
6. Briefly describe indicators of the employment market for students completing this initiative, including sources used for employment information/data. U.S. Department of Labor statistics indicate that employment of architects is projected to grow 17 percent from 2012 to 2022, faster than the average for all occupations, and additional job openings will stem from the need to replace architects who retire or leave the labor force for other reasons. Prospects will also be favorable for architects with knowledge of "green" design. Green design, also known as sustainable design, emphasizes energy efficiency, renewable resources such as energy and water, waste reduction, and environmentally friendly design, specifications, and materials. Rising energy costs and increased concern about the environment has led to many new buildings being built green. Median annual earnings of architects were \$73,090 in 2012. The lowest 10 percent earned less than \$44,600, and the top 10 percent earned more than \$118,230. Some firms pay tuition and fees toward continuing education requirements for their employees. (Source: U.S. Department of Labor, Bureau of Labor Statistics, Occupational Outlook Handbook, 2014). Observation and input from our Advisory Board suggests that employment in the built environment is on a path to sustained growth; architecture firms throughout Michigan are growing, hiring and looking for qualified professionals.
7. Briefly describe indicators of potential student interest/demand for the new initiative, including sources used for student market information/data. During the spring semesters of 2015 and 2016, 95% of current architecture and facility management students were surveyed to validate the need for an advanced degree through the following methods: student focus discussion groups and ARCH/ARST/FMAN student surveys. Compiled reports for each are available for review, and the overall results indicate an extremely high interest in an accredited degree in architecture at the main campus of FSU. Throughout the past 20 years, the Architecture Advisory Board has praised the practice-based focus of Ferris' programs; in turn they have encouraged the enhancement of the existing AAS and BS programs into an accredited program. They believe that an accredited, fifth year built on the existing architecture curriculum will produce viable, employable graduates. In an effort to increase and promote diversity within the architecture profession, the advisory board believes the size and culture of FSU are most favorable for attracting minority students. The existence of a local B.Arch accredited architectural program would allow west Michigan firms better access to a diverse group of graduates from a NAAB accredited degree. In addition, ongoing recruitment visits with high school and community college students also demonstrate a strong interest in the potential of an accredited degree in architecture at the main campus of FSU.

8. To what extent will this initiative draw new students to FSU or KCAD? To what extent will it draw students from existing programs? The primary market for the proposed program is serious, academically qualified students who wish to receive an accredited degree in architecture and become licensed architects. The curriculum will attract students who desire the opportunity to effect meaningful change in the built environment. In addition to the accredited, practice-oriented curriculum, other factors that indicate the potential to draw new students to FSU are geographic location, cost, and university size. In particular the cost to earn a B.Arch (2+3), at an undergraduate tuition rate, is considerably less than the cost to earn an M.Arch (4+2) or (4+3) at a graduate tuition rate. The opportunity to earn an accredited NAAB degree in 5 years versus 6 or 7 years will provide a more timely, less expensive path to licensure. Likewise, recruitment visits to high schools and recruitment telephone calls to high school students have indicated that students are interested in attending FSU due to its location and size but choose other architectural programs that offer accredited degrees. The implementation of the proposed degree would attract these serious high school students who would otherwise leave west Michigan to obtain an architectural education. The draw of new students initially interested in an accredited B.Arch will provide a larger pool of qualified students that potentially could ladder from the AAS into the FM or CM programs; likewise students could ladder from the BS into KCAD's M.Arch program.
9. Approximately how many students are expected to enroll? Include rationale for estimates.  
16 in the first year; 48 after three years.  
Enrollment estimates are based on current enrollment capacity within the AAS in Architectural Technology (ARCH) program and NAAB expectations that the faculty student ratio approximate 1/16. Current ARCH enrollment capacity is 54 first-year students and 40 second-year students. Upon graduation from the AAS program, students will have 4 career path choices that include: BS in ARST, BS in FMAN, BS in CONM or B.Arch (see Table A below). In keeping with NAAB's expectation of a low faculty student ratio, current ARST studio courses are capped at 18 students, but would increase to 20 to accommodate students wishing to only pursue the B.S in ARST career path (see Table B below). Total architecture student enrollment (years 1-5) will be 150 students. Total ATFM department enrollment, including FMAN quota of 50 students, will be 200 students.

<b>Table A - Projected Enrollment &amp; Career Paths for Graduates of AAS in ARCH</b>						
	AAS ARCH	B.S. ARST	B.S. FMAN	B.S. CONM	B.Arch	Other
Year 1	54					
Year 2	40					
Sub-total	94					
<b>Career paths &amp; projected enrollment of (40) graduates</b>						
Year 3		4	15	3	16	2

<b>Table B - Enrollment (quotas) per Program</b>		
<b>Architecture</b>		
Phase I - ARCH	Year 1 (AAS)	54
Phase I - ARCH	Year 2 (AAS)	40
Phase II - B.Arch	Year 3 (B.Arch)	16
Phase II - B.Arch	Year 4 (B.Arch)	16
Phase III - B.Arch	Year 5 (B.Arch)	16
Sub-total		142

ARST	Year 3 (BS)	4
ARST	Year 4 (BS)	4
Sub-total		<b>150</b>
<b>Facility Management</b>		
FMAN	Year 3 (BS)	25 (15 internal, 10 transfer)
FMAN	Year 4 (BS)	25
Sub-total		<b>50</b>
<b>Total Enrollment</b>		<b>200</b>

10. At which FSU campuses/regional centers or other sites will the initiative be offered? The B.Arch would be offered at the Big Rapids campus. Delivery of classes would range from traditional to mixed-delivery. The possibility of some fully-online courses will be explored through discussions with NAAB.
11. Will Internet or other distance learning technology be used for course/program delivery? Describe. In an effort to provide flexibility and convenience for students some classes would be offered as mixed delivery or possibly fully-online. For example, a course in Professional Architectural Practice could be offered as a fully-online course; studio and seminar type courses could be a blend of the traditional face-to-face setting fulfilled with week-long sessions coupled with online instruction. As the curriculum is developed all options for delivery will be explored.

Complete questions 12, 13, 14 in consultation with department administrator and/or dean.

12. Provide a rough estimate of the resources needed to implement the initiative. Please attach a three-year budget to include faculty salaries plus benefits, library materials estimate, equipment and classroom materials estimate, and renovation estimate.

Projected Expenses	Start-up Year (Fall of 2019)	After Three Years (ongoing)
Supply and expense	\$10,000	<del>\$20,000</del> \$10,000
Equipment	<del>\$50,000</del> <i>Fulfilled with Swan 1<sup>st</sup> floor renovation</i>	<del>\$10,000</del>
Classroom furnishings	<del>\$25,000</del> <i>Fulfilled with Swan 1<sup>st</sup> floor renovation</i>	
<del>Full time faculty (1)</del>	<del>\$70,000 + benefits</del>	<del>\$75,000 + benefits</del>
Adjunct faculty Level 3 (1)		<del>\$43,730 (9 month)</del>
Adjunct faculty Level 1 (3)	<del>\$15,000</del> \$11,250 - \$17,430/semester	<del>\$20,000</del> \$7500 - \$11,620
ATFM secretary (Level 2). <i>Fulfilled in May of 2016 by Dean Larry Schult</i>		
Library materials	Adequate	
Marketing	<del>\$7,500</del> \$2,000	<del>\$2,000</del>
Accreditation costs	\$32,000 (over a 5-year period from 2018-2022)	
Accreditation (annual fee)		\$7,000
Total	<del>\$214,500</del> \$46,860 + \$32,000	<del>\$134,000</del> \$68,230

Projected Income	Total 3-year enrollment	Cost per credit hour	Credit hours (est.)	Estimated gross revenue from tuition	
Start-up	52	\$392	90	\$1,834,560	
After Three Years	56	\$422	90	\$2,126,880	
Supplementary Income (studio expenses to support field trips, supplies, etc.)					
Student Fee	Total 3-year enrollment	Student fee/year		Estimated revenue from student fees	
Start-up	52	\$300		\$15,600	
After Three Years	56	\$400		\$22,400	

13. Project the resources that could come from reallocation within the department or college and the new resources that would be required. In addition to the current ATFM faculty, two to three adjunct faculty per semester would be necessary for a three-year phase in duration. After three years one **Adjunct Level 3 faculty (9-month) or a temporary part-time faculty**, and one or two adjunct faculty members will be necessary. The program recently received a full-time, dedicated secretary. It will be essential to maintain that position. In terms of equipment (hardware, software, model shop, etc.), some adequate equipment exists; **and with the first-floor renovation project of the Swan building necessary furnishings and equipment will be purchased and in place by fall semester 2017 to outfit the 5<sup>th</sup> year studio and supplement other necessary equipment within the model shop.**
14. Are there new space needs? If so, how much? How would the space be used? Has existing space been identified? If so, where? Is renovation/remodeling necessary? In addition to the existing space allocated to the ATFM Department on the **second floor of the Swan building and the new spaces included within the first-floor renovation project all space needs, as required by NAAB, will be met. New spaces to be included on the first floor are: junior, senior and 5<sup>th</sup> year studios, FM learning studio, ATFM program office suite, digital center, model shop, gallery/crit space and student office and lounge.**
15. Is there professional accreditation for the program? Is it required or voluntary? Will accreditation be sought, and when? What will be the one- time and ongoing costs of accreditation? Professional accreditation is required and will be sought for the proposed program. The accrediting body is the National Architectural Accrediting Board (NAAB). NAAB accreditation will begin with an Initial Application submitted May 1, ~~2017~~ **2018**. A detailed timeline will be developed and program accreditation will be sought for May 1, ~~2021~~ **2022**. Accreditation will be retroactive two years from the date, May 1, ~~2021~~ **2022**. Therefore, the first graduating class, Spring of ~~2019~~ **2020**, will receive accredited degrees. The costs of accreditation include costs of four candidacy visits over a five-year period; estimated at \$32,000. Secondary costs are those of archiving and recording student and faculty work. Once accreditation is obtained, an annual fee of \$7000 to NAAB is required.
16. Has there been preliminary discussion with other departments/colleges that will be involved in course/program delivery? If yes, what was the feedback? Not applicable.

Department Faculty's signature: Diane L. Nagelkirk Date 4/2/2017

Note: Faculty signatories are tenure-track faculty who are involved with initiation of the proposal or who are collaborating with an administrator on the proposal.

Comments: On October 24, 2016 ATFM Faculty supported the B.Arch proposal with a vote of 7 in favor of, and 0 not in favor of. On March 20, 2017 faculty supported the budget revisions as shown in this document based on the fruition of the Swan Tower first floor renovation project and its corresponding furnishings, etc.

John R Schmidt

Digitally signed by John R  
Schmidt  
Date: 2017.04.06 14:52:48 -04'00'

Department Administrator's signature: \_\_\_\_\_ Date \_\_\_\_\_


Note: If this is an interdepartmental initiative, include additional Department Administrator signatures

Comments: [Click here to enter text.](#)

Dean's signature:  Date 4/2/17

- For cross-college initiatives, include additional signature(s) of Dean(s)
- For existing programs customized for off-campus delivery to a cohort group, include College and EIO Deans' signatures

Comments: [Click here to enter text.](#)

Provost's Signature:  Date 4/20/17

☒ Approved - Approval indicates permission to develop the full proposal. It does not assure final approval.

Comments and/or suggestions: [Click here to enter text.](#)

☐ Not approved - Explanation: [Click here to enter text.](#)

c. Initiator(s)

Department Administrator(s)  
Deans' Council  
University Curriculum Council  
Academic Senate  
VPEIO  
Provost  
FSU Intranet

Approved with the understanding that, over the next two budget years, (2017-18 & 2018-19) the proposers work with Kim Wilber and myself to build the projected start-up costs into the CET budget for 2019-20.

