

Center for Real Estate

MIT founded the Center for Real Estate (CRE) in 1983 to improve the quality of the built environment and to promote a more informed professional practice in the global real estate industry. We are home to the first-ever one-year Master of Science in Real Estate Development (MSRED) degree, and offer an integrated suite of professional development courses. Our pioneering research investigates the real estate transaction from initial concept to market reality, providing breakthrough knowledge that helps organizations capitalize on today's dynamic markets and technologies. Uniting industry leaders with MIT's distinguished researchers and students, our selective industry partnership program advances the art and science of international real estate and bridges the gap between theory and practice.

Vision

The structures built by the real estate industry represent more than a third of the world's tangible wealth and are responsible for more than a third of the world's energy consumption and CO₂ emissions. If the industry is to maintain its responsible leadership in the global community, it must encourage a culture of sustainability and innovation that meets the challenges of an increasingly interconnected world.

MIT is uniquely positioned to help the industry increase its efficiency, prosperity, and social responsibility. Through research and education initiatives at the Center for Real Estate, MIT's tradition of excellence in technology, knowledge transfer, and global reach is applied to the real estate industry, developing innovations to help practitioners build responsibly and profitably.

Our goal is to educate the next generations of industry leaders, preparing them with tools to develop better real estate worldwide. In keeping with the MIT tradition, we bring to industry the very best offered by practical experience coupled with the interdisciplinary studies of design, science, and engineering. We offer:

- A specialized, globally recognized, one-year Master of Science in Real Estate Development (MSRED) program that emphasizes the creation, operation, and management of the physical product of real estate
- A unique, interdisciplinary research platform that brings together academia and industry to meet the need for more informed decision making based on practical knowledge
- A network of global outreach that links the real estate industry with Center graduates and MIT to develop and support the industry's long-term growth

Strategic Goals and Objectives

The Center had three key strategic thrusts for FY2007: enhancing its educational programs, building an effective industry-supported research program, and identifying a plan for financial sustainability.

Enhanced educational programs: The Center is working to enhance its core MSRED program and its continuing education and professional development offerings. It is focusing more clearly on the real estate development process and bringing the rigors of science to the real estate industry. The purpose is to give the MSRED program a unique, world-leading, and innovative curriculum that effectively leverages MIT's globally recognized excellence in science and technology.

As real estate becomes an increasingly demanding and complex field, practitioners must keep abreast of trends in policy, technology, and professional practice. CRE offers a suite of short summer courses to help meet this need, providing timely and practical knowledge designed for active professionals. Traditionally, these courses have been offered as part of the Center's Professional Development Summer Institute. Our goal is the development of a suite of courses that can be offered throughout the year and targeted to junior-level and management-level professionals.

Industry-supported research program: The Center has continued to build its program of interdisciplinary, industry-relevant, innovative, industry-supported research initiatives: New Century Development (NCD), the Housing Affordability Initiative (HAI), and the Commercial Real Estate Data Laboratory (CREDL).

Financial sustainability: A minimum of \$2.5 million is necessary to run a first-rate real estate program and center, and MIT would not want to run anything less. The current budgetary revenue to support the program is approximately \$1.7 million, leaving a financial gap of approximately \$800,000. Considering the nature of the real estate industry, the classical MIT model (focused on research funding) is not viable for the sustainability of the Center. Top real estate programs elsewhere in the United States are funded primarily by named endowment gifts and student tuition. The Center continues to pursue a three-legged strategy to achieve financial sustainability: (1) increase Center-generated revenues beyond tuition (from our industry outreach/partnership program, research consortia, executive education), (2) work with the Office of Resource Development and the Office of the Dean of the School of Architecture and Planning to pursue a gifting campaign (involving alumni and other potential donors and focused on CRE's upcoming move to new space in Building 9, coinciding with the Center's 25th anniversary), and (3) restructure the Center's budgetary relationship with the Institute to gain increased financial support for the MSRED program.

Accomplishments During FY2007

Research

Developing an innovative and industry-relevant research program was the single most important element of the Center's strategic actions during FY2006, and during FY2007 we continued to make significant strides toward achieving this goal. We identified three potentially high-contribution initiatives that reach out beyond CRE to other elements within MIT and the real estate industry and that, taken together, span a range of disciplines and foci that synergize with the Center's strategic directions and abiding mission. HAI had its third annual conference and was supported by a consortium of representatives from the public sector and nonprofit, financial, and development

communities. CREDL researchers continued to pursue the development of commercial property market information. Real Capital Analytics, Real Estate Analytics LLC, the National Association of Real Estate Investment Trusts (NAREIT), and the National Council of Real Estate Investment Fiduciaries (NCREIF) provided financial support for this work. The NCD initiative is being expanded to promote the practice of sustainable building development.

Housing Affordability Initiative

The purpose of HAI is to conduct studies that will bring to bear MIT's unique strengths on the housing supply and affordability problem. The initiative started with a focus on the Boston metropolitan area, and during FY2007 the focus expanded to include Springfield, MA, Portland, ME, and Rhode Island. Ultimately, the objective is to make the initiative national and possibly international in scope. HAI is being directed by principal research associate Henry Pollakowski under the guidance of a steering committee chaired by Professor Langley Keyes of the Department of Urban Studies and Planning (DUSP).

Research conference. On May 22, 2007, the Center hosted its third annual Housing Affordability Conference. Approximately 130 people attended. The research team presented its revised Housing Affordability Index. The index includes both rental and owner-occupied units and incorporates measures of quality of life such as school quality, open space, and public transit. Massachusetts' Affordable Housing Zoning Law, Chapter 40B, was also discussed. The law allows municipalities to override local zoning for higher density residential housing when housing for low- and moderate-income households is provided.

40B life stories. Under the direction of Professor Lynn Fisher, HAI studied the 40B approval process. Applications in 113 towns that were filed between 1999 and 2005 for 369 projects were reviewed. To the surprise of many, Professor Fisher's research showed that zoning boards approved issuing comprehensive permits for 90 percent of the projects, but building permits were never filed for 45 percent of the projects. The findings of this study were released on June 18, 2007.

Industry support for the Center's HAI work totaled \$89,170 in FY2007; full support is projected to be \$156,000.

Commercial Real Estate Data Laboratory

CREDL facilitates and promotes the gathering and compilation of data and methodologies to quantitatively measure the performance of commercial real estate along a variety of dimensions (investment, operational, environmental).

Commercial property pricing indexes. During the latter part of FY2006 and the beginning of FY2007, the Center reached an agreement with Real Capital Analytics (RCA) to develop a methodology for creating periodic price-change indexes. The RCA-based commercial property index is a periodic same-property round-trip investment price change index of the US commercial investment property market based on RCA data. The methodology for index construction was developed by CRE through a project

undertaken in cooperation with a consortium of firms including RCA and Real Estate Analytics LLC. The index was developed with the objective of supporting the trading of commercial property price derivatives. The work resulted in a patent application for the methodology that supports the creation of the indexes. Most important, the creation of the indexes has the potential to improve the efficiency of real estate markets by facilitating greater specialization (developers can focus on the creation of real estate assets, while investors can focus on portfolio management) and optimal portfolio management.

Transaction-based index. In February 2006, the Transaction-Based Index was released with the announcement of the investment performance of commercial real estate nationally during calendar year 2005. Since that time, information has been updated on a quarterly basis and made publicly available via the Center's web site.

REIT-based indexes. During FY2007, agreement was reached with NAREIT for the Center to develop methodology for the construction of commercial property price indexes based on share price movements of real estate investment trust (REIT) stocks. The project commenced in FY2007 and will continue in FY2008.

New Century Development

CRE is working with the Engineering Systems Division to explore the application of real options and related computer simulation techniques to the real estate development process. An initial meeting with industry was held on May 2, 2007; faculty from the Center and the School of Engineering introduced representatives from the real estate industry to the options and simulation framework. Feedback from this session is being used to inform the Center's professional development course on decision making in real estate and the international symposium that is being held in October 2007 in Cambridge.

During the upcoming year, the NCD initiative will be expanded to include a focus on promoting sustainable building development in the real estate industry. Faculty in the School of Architecture and Planning have been approached about convening an industry roundtable that introduces innovations in building technology in an attempt to catalyze dialogue about the potential impact of these innovations on the real estate industry. This meeting is being developed for FY2008.

Education

MSRED Curriculum Changes

The Center requires all MSRED students to take a two-term capstone subject, Real Estate Development; enrollment is limited to MSRED students. This year the course was divided into two parts. The first term and a half was devoted to the real estate development process. The last half of the spring term prepared students for writing their thesis. This is the first time thesis preparation was offered as a required, for-credit course. The in-depth course involved industry and alumni participants.

For the second year, Professor Tony Ciochetti led a mini-course during the Independent Activities Period on European real estate. Students met and joined real estate students

at the University of Cambridge in England, and they visited firms and assessed real estate projects in Cambridge, London, and Paris. In addition, at the end of the second term, 19 students participated in the Center's first international real estate course in China. As part of the class, students visited four cities (Hong Kong, Shenzhen, Shanghai, and Beijing), met with students and faculty from Hong Kong University and Tsinghua University, and visited 17 companies and projects. The class was created to give students a better sense of the diversity of projects, approaches, and challenges for real estate development in China.

Professor Fisher became the lead instructor for the legal issues subject, formerly taught by lecturer W. Tod McGrath; Dr. Gloria Schuck's leadership class moved from the spring term to the fall; and lecturer John Macomber began developing a course on sustainability that will be offered during the spring term of 2008.

Regional Treks

This year the MSRED experience was enhanced by three treks. The first was in October 2006. Students attended the Urban Land Institute's annual meeting in Denver, CO, from October 17 to October 20, and also toured alumni projects in Denver and Aspen. From November 29 to December 1, a contingent of CRE students visited Arizona State University. While in Arizona students attended classes, met local developers, and toured large-scale suburban developments. The last trek was in late April 2007, when students took their annual trip to New York City. While in Manhattan, they heard presentations from senior executives at Moody's Investor Services and Tishman Speyer. The international classes and regional treks highlight the diversity of development issues and responses within the real estate industry.

MSRED Students

During FY2007, the Class of 2006 graduated, the Class of 2007 matriculated, and the Class of 2008 was admitted.

Class of 2006: Thirty graduates, members of CRE's 22nd class, received master's degrees in real estate development in September 2006. Graduates are employed in real estate finance and investment and as project managers and entrepreneurs. Employers include Archstone-Smith, an investor in apartments throughout the United States; BlackRock, a global investor that merged with Merrill Lynch Investment Managers in September 2006; Boston Properties, a major developer and owner of properties in Boston, New York City, Princeton, NJ, San Francisco, and Washington, DC; and BRIDGE Housing, a California-based developer of affordable housing.

Class of 2007: The 36 members of this class included 4 joint degree candidates, 13 women and 23 men, and 11 international students. Eight students hold advanced degrees in landscape architecture, architecture, management, Middle Eastern studies, engineering, and business administration. One member of the entering class applied and was accepted as a dual-degree student in DUSP; he will complete his degree requirements in 2008. A second member of the class is continuing his studies for an additional year. This class, which will graduate in September 2007, was the second to be charged the full

MSRED tuition premium. The MSRED class yield rate for the previous class (2006) was 63 percent, down from 74 percent the prior year; however, the yield for the Class of 2007 rebounded to 78 percent.

Class of 2008: In April, the Center selected its 24th class of MSRED students. Forty-one students from a pool of 107 candidates were offered admission; 35 accepted the offer, for an 86 percent yield. Three current MIT students were also accepted into the Class of 2008 as dual-degree students. Including these dual-degree students, there are 38 members of the Class of 2008. The class is composed of 9 women and 29 men, the average age is 29 years, and 16 members are from counties other than the United States.

Professional Education

The 22nd summer of professional development courses brought 377 attendees to campus in June and July 2006, a 65 percent increase from the previous summer's attendance. Attendees enrolled in nine courses, two of which were new offerings: Entrepreneurship and Advanced Real Estate Development.

Building on the success of 2006, the Center enhanced the quality of its marketing materials, sharpened its messaging, and was more targeted in its outreach and advertising in 2007. In addition, based on the success of our more advanced course offerings last year, the Center introduced the Executive Series, three classes—Innovation and Entrepreneurship in Real Estate, Advanced Real Estate Development: Decision Making, and New Tools: Real Estate Equity Derivatives—targeted to more senior real estate professionals. Early indications for the 2007 classes, which started in June, suggest another strong year. It is hoped that in FY2008 the Executive Series can be repriced to generate additional revenue for the Center and/or that elements of the series can be provided to overseas or commercial venues that will generate further funding for the Center.

Industry Outreach

We have continued to incorporate the concept of “partnership” into our industry outreach model. The Center's value propositions to industry are our MSRED program and our research program, as well as the natural byproducts of these programs, such as the Center's ability to conduct professional education courses and convene substantive forums of thought leaders in specific fields.

Over the past year, industry support of our research program has increased significantly, and we have piloted a model for small, interactive exchanges—executive roundtables—that we hope to develop. We held our first executive roundtable in May 2007. The focus of the meeting was on the value of flexibility and the utility of real options methodology in development. Professors Richard de Neufville and Olivier de Weck of the Engineering Systems Division presented their work and engaged industry members on ways in which the tool could be used in real estate development. Our next executive roundtable will focus on sustainability and will include members of the Department of Architecture's Building Technology group.

Forums on Issues and Innovations in Real Estate

The goal of the Forums on Issues and Innovations in Real Estate (FIRE) events is to engage and communicate with members of the real estate industry about topics that are timely, noteworthy, and significant. CRE partner Taurus Investments hosted a FIRE event in Berlin, Germany, where Center chairman Tony Ciochetti moderated a panel on “The Role of Real Estate in the Family Office Portfolio.” In April 2007, the Center hosted an event in San Francisco, CA, where Center director David Geltner presented “Transaction Price Indexes and Derivatives: A Revolution in the Real Estate Investment Industry?” Both FIRE events were very well attended.

Graduation Weekend

On September 30, 2006, the Center graduated its 22nd class. A number of activities surrounded the occasion. On September 28, we hosted an open house that had approximately 40 attendees. On September 29, CRE alumnus Kip Thompson invited students to learn about corporate real estate and strategy with Dell. Following the Dell presentation, the Center webcast an afternoon of presentations that served to highlight the Center’s commitment to excellence and applying the rigor of science to real estate. Center chairman Tony Ciochetti provided a “state of the Center” report, Professor Phillip Thompson of DUSP discussed the rebuilding of New Orleans, Center director David Geltner outlined the construction and use of commercial property indexes, three outstanding student theses from the Class of 2006 were presented, and engineering science professor Richard de Neufville engaged the audience with a presentation on the use of real options in development. Following the webcast, current students, their families, and alumni were invited to a reception honoring the Class of 2006. As part of our graduation weekend activities, the Center also invited members of the classes of 1986 and 1996 to an anniversary dinner; almost half of the members of the anniversary classes attended the event.

Technology Upgrades

In February 2007, the Center launched version 2.0 of the MIT Real Estate Exchange (MITREX). Developed for Center graduates, partners, students, and staff, MITREX was first launched in May 2004. It includes a catalog of information that covers every conceivable real estate function, from planning and design to development, construction, brokerage, economics, investment, management, and the law. Users can focus on eight property types and nine regions, both nationally and internationally. Library resources include documents, links, people, authors, companies, jobs, and updates. Initially conceived as an information management tool, version 2.0 was enhanced to facilitate improved networking between MITREX members and incorporated job listings, professional updates, advanced search tools, and enhanced navigation. MITREX 2.0 has 408 members and comprises 427 documents.

Marketing the Center for Real Estate

Working with the Publication Services Bureau in November 2006, CRE issued a request for proposals seeking a marketing/communications consultant to create a marketing strategy supporting the Center’s strategic goals for 2007 and beyond. The Center received responses from four companies and decided to interview two. Marsha Sanders

was selected in January 2007; Sanders' final report will be prepared in early FY2008, but her preliminary findings reinforce the Center's current strategy. Specifically, the Center needs to align itself more closely with the MIT brand, adopting messaging that echoes the Institute's messages regarding new knowledge, excellence in science and technology, a commitment to solving the world's greatest problems, and the ability to cross academic boundaries to achieve results. Her recommendations promise to affect all aspects of Center communications—web, paper, identity, and so forth—and a key recommendation will include hiring a person to be responsible for marketing and communications.

Finances and Funding

While the Center is making huge strides relative to its vision and goals, the implementation of its core strategies has entailed an approximate doubling of its annual rate of expenditures since 2002. The majority of this increase has gone into creating substantive educational and research products and services that reflect MIT's unique strengths and its mission to use knowledge to improve the world. In the FY2007 budget, the Center projected stabilized expenses of \$2.5 million, reflecting the Center's commitment to global outreach and cutting-edge research.

As mentioned earlier, there are current revenues of approximately \$1.7 million (including the base budget allocation from MIT) and, thus, a financial gap of approximately \$800,000. Our continuing goal is to develop programs to increase annual, ongoing contributions from the Center's three primary sources of financial support: the Institute, the real estate industry, and the alumni community.

Starting in FY2005, the Center was allowed to charge premium tuition, keeping all revenue above MIT's base tuition amount; in FY2007, this premium generated \$226,760 in income. In FY2007, fees from our industry partners and HAI and CREDL supporters were \$626,370, \$231,000 higher than in FY2006; revenue from the Center's professional development courses was approximately \$480,000 in FY2007, a record number. While CRE has made significant strides in each of these areas, continued vigilance is required to grow the industry's financial support of the Center. Accordingly, CRE is continuing to pursue an aggressive development program focused on cultivating major gifts and recurring sources of income.

New Sources of Revenue

As an MIT center, CRE is required to be self-sufficient. Consequently, the Center needs to raise a substantial amount of its operating budget from external industry contributions. The role of the Center's research program includes attracting such financial support. FY2007 was noteworthy in part because of the successful negotiation with Delta Rangers, Inc., to support the development of commercial property price indexes that would be the basis for the creation of derivative products. As of fiscal year-end, the Institute's Technology Licensing Office was in the midst of finalizing a licensing agreement and equity interest in the successor organization to Delta Rangers, Real Estate Analytics LLC.

In addition, the Center is working with NAREIT to develop new types of REIT equity share price-based indexes that will reflect specific property market segments. The terms of this agreement are being reviewed and finalized on the basis of consultations with the Technology Licensing Office.

Recurring Sources of Operating Income

Tuition: The primary competitors for real estate graduate education are schools of business. To reflect the competitive environment and the higher level of service required by MSRED students, the provost approved charging a premium tuition. The Center collected \$226,760 in premium tuition during FY2007.

Professional development courses: During the summer, the Center offers continuing education courses for real estate professionals. These professional development courses are a critical contributor to the Center's financial stability. Building on the success of its aggressive marketing efforts in 2006, the Center upgraded its marketing materials, enhanced its course offerings by adding the Executive Series, and partnered with the National Network of Commercial Real Estate Women, the Royal Institute of Chartered Surveyors, the CCIM Institute, and the National Association of Industrial and Office Properties. We provided eight courses, including "Creating Sustainability: From Brown to Green" and "Advanced Real Estate Development: Decision Making," updated versions of courses offered in 2006, and a new course, "New Tools: Real Estate Equity Derivatives." As of the end of FY2007, enrollments in and gross revenues from these courses were higher than the year before.

Industry Partners

The partnership model continues to evolve, leading to the elimination of the \$10,000 partnership level; the new partnership fee is \$20,000. As of the end of FY2007, the Center had 26 corporate partners that generated an income of \$367,200. Goldstar Properties, Marsh & McLellan, NAREIT, and the Pension Real Estate Association are new industry partners.

Supporters of HAI provided revenue and gifts totaling \$89,170; supporters of CREDL, in particular the Commercial Property Index, provided \$170,000 to the Center.

Major Gifts

Blake Eagle was the CRE chairman from 1993 until 2000. When he left the Center, he became the chief executive officer of NCREIF. In June 2007, Eagle retired from NCREIF. To mark his retirement and his many contributions to the industry, his friends and colleagues decided to establish an endowment in his name at the Center. The endowment will fund a fellowship for an MSRED student. The goal is to raise \$1 million. As of fiscal year-end, there were pledges and gifts of \$638,050 toward the \$1 million goal.

During FY2009, CRE will be moving into newly renovated space in Building 9. This move represents a major administrative and financial opportunity for the Center. CRE will be better integrated into the intellectual core of the Institute, and the move will allow the Center to galvanize the real estate industry's philanthropy around the cost

of redeveloping the new space. In general, individuals who have accumulated their wealth from the real estate industry are more inclined to provide tuition support and major gifts that result in a naming opportunity. With this in mind, our specific goal is the generation of an eight-figure named gift. The Center's Executive Committee (Chairman Tony Ciochetti, Director David Geltner, and Managing Director Marion Cunningham) has been working with the Committee for Review of Space Planning and the School of Architecture and Planning's assistant dean for resource development to develop a strategy for raising funds for the new space.

During FY2007, CRE received \$632,593 in gifts. This amount includes donations to the Blake Eagle Fellowship Fund of \$409,550. The largest single gift was \$100,000 from George Russell for the Blake Eagle Fellowship Fund.

Alumni

CRE's alumni are ardent fans of the Center. During FY2007, alumni gifts totaled \$221,008. To continue to cultivate this group's financial support, we have heightened our communication activities and are working with the assistant dean for resource development to create a development strategy for our alumni. The Center participates in the Institute's fall solicitation, makes a follow-up request for support in December, and conducts a spring "phone-a-thon" to encourage ongoing alumni support.

Personnel Changes

Dennis Frenchman is a professor of the practice at MIT with a joint appointment in the Department of Architecture and DUSP, where he heads the City Design and Development Group. He teaches the Center's core subject in design for development. In June 2007 it was announced that he had been promoted to the position of full professor with tenure in DUSP, effective July 1.

The Center's research staff grew significantly. Schery Bokhari was hired as a research specialist in September 2006 and is working with CREDL and HAI; Ryan McCann joined the Center in December 2006 as a research support associate with HAI; and Keri-Nicole Dillman, PhD, was hired in June 2007 as a visiting scholar working as part of the Housing Affordability Team.

David M. Geltner

Director

Professor of Real Estate Finance

More information about the Center for Real Estate can be found at <http://web.mit.edu/crel/>.