



2022-2023

Corporate & University Real Estate and Financial Modeling

TRAINING

Chapter 5 Practice Problem In Sp

12% COMPLETE 8/66 Steps

Hello, Bruce Kirsch!

REFM COURSES

Real Estate Financial Investments C

REFAI Free

3 Lessons

Module

4 Lessons

Optional Quizzes

4 Quizzes

Module 2: Risks and Opportunities

4 Lessons | 5 Quizzes

Optional Review of Module 2 Quizzes

4 Quizzes

Module 3: Fundamentals of Commercial Leases

2 Lessons | 1 Quiz

Optional Review of Module 3 Quiz

1 Quiz

Module 4: Property-Level Projection Modeling

3 Lessons | 3 Quizzes

Chapter 5 | Property-Level Pro Forma Analysis

Chapter 5 Practice Problem In SpreadsheetGrader

Quiz on Chapter 5: Property-Level Pro Forma Analysis

Chapter 6 | Financial

Welcome to the test for Chapter 5 Figure 5.10 Practice Question in

Start Test

Complete Test

Click the **Start Test** button when you are ready to begin, and the **Complete Test** button when you are ready to have the test graded.

retail plaza case study.

	B	C	D	E	F	G
Year 1		Year 1	Year 2	Year 3	Year 4	Year 5
Year Over Year Growth	0	2.00%	4.93%	2.25%	0.67%	
Cap Rate % GPR	0	1.00%	1.50%	2.00%	3.00%	
Loss % Gross Income	1.00%	1.00%	1.00%	1.00%	1.00%	
Expense Year Over Year Growth	0	4.00%	4.00%	4.00%	4.00%	
Management Fee % Reimbursables	10.00%	10.00%	10.00%	10.00%	10.00%	

Kathy Center Cash Flow Statement - Figure 5.10						
	Year 1	Year 2	Year 3	Year 4	Year 5	
OPERATING INCOME						
Rental Income:						
F Gross Potential Rental Revenue: Prior Year * (1 + A)	4,500,000	4,590,000	4,816,287	4,924,653	4,957,649	
G Vacancy: -F * B	0	(45,900)	(72,244)	(98,493)	(148,729)	
H Net Base Rental Revenue: F + G						
I Percentage Rents	93,305	66,209	66,925	64,003	65,425	
J Total Rental Income: H + I						
Expense Reimbursements:						
K CAM Billings	445,368	440,267	420,196	415,895	376,894	
L Property Tax Billings	390,428	370,123	351,126	346,681	330,128	
M Ancillary Income	24,580	23,251	24,654	23,125	24,188	
N Gross Income: J + K + L + M						
O Credit Loss: -C * N						
P Total Operating Income: N + O						
OPERATING EXPENSES						
Reimbursable Expenses:						
R Common Area Maintenance: Prior Year * (1 + D)	(445,368)					
S Property Taxes: Prior Year * (1 + D)	(390,428)					
Non-Reimbursable Expenses:						
T Insurance	(55,548)	(57,734)	(60,017)	(62,389)	(64,855)	
U Utilities	(105,114)	(109,355)	(113,755)	(118,334)	(123,097)	
V Management: E * (R + S)						
W Total Operating Expenses: R + S + T + U + V						

**"A HIGH-IMPACT TRAINING
SESSION FOR OUR ANALYSTS,
WORTH EVERY DOLLAR."**



MATTHEW CASPER
MANAGING DIRECTOR, PARK HILL



NAVIGATING THIS CATALOG ONLINE

Throughout this catalog, you can click on any underlined item to be linked to that page. You can alternatively navigate one page at a time with your arrow keys and the page up and page down keys.

There are also general navigation and zoom controls in the bottom border of the catalog window.

Lastly, wherever you see the bulleted list icon in the bottom left of a page, you can click on it to be taken to the master course listing.



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TRAINING SESSION DESCRIPTIONS

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REFM TRAINING OVERVIEW

Real Estate Financial Modeling (REFM) training enables you to master basic and advanced concepts and techniques of commercial real estate, Microsoft Excel, finance, and real estate transaction and partnership financial modeling. All hands-on training other than for the HP 12C calculator is exclusively Microsoft Excel-based and is delivered assuming that each participant will be following along on their own computer. All Excel-based training includes reusable, fully-unlocked Excel files.

Benefits of training with REFM include:

- improved analysis capabilities, quicker work turnaround and fewer mistakes
- increased confidence in one's Excel skills
- improved financial modeling knowledge, understanding and customization capabilities
- sharpened presentation of a transaction's financials
- heightened credibility internally and with potential partners, lenders and investors

Additional benefits for university students:

- stronger performance in internship and job interviews
- sharpened presentation of case study financials
- stronger performance on academic assignments and exams.

Training Formats

Training is available on-site and via online web meetings. In all sessions, participants are encouraged to ask questions as they arise.



Slide Show

Instructor lecture with interactive real-time Q&A.



Hands-On

Instructor lecture, with training participants following along in their own Excel in real time.

Participants perform a series of exercises to ensure they are grasping the lesson and mastering the concepts and technical skills being taught.

All exercise solutions are included and discussed.

SAMPLE TRAINING CURRICULUM

PRE-TRAINING INDIVIDUAL SKILLS ASSESSMENT (optional)

- Self-study: *Excel for Real Estate* and *Real Estate Finance Bootcamps*
- Self-administered Online Certification testing on both subject areas
- REFM assesses performance and provides feedback to training contact

ON-SITE TRAINING DAY 1

- Addressing of any areas of weakness identified in skills assessment
- Mixed-use Apartment/Multi-family Building Development Modeling
- Single Transaction Equity Joint Venture Partnership Waterfall Modeling

ON-SITE TRAINING DAY 2

- Office Property Acquisition and Equity Screening Analysis Modeling
- Core and Core-Plus Real Estate Private Equity Fund Modeling.

MEET THE FOUNDER OF REFM



Bruce Kirsch is the founder of Real Estate Financial Modeling. Mr. Kirsch began his real estate career at CB Richard Ellis, where he marketed high-rise New York City office buildings for re-development in the top-producing Midtown Manhattan Investment Properties Institutional Group.

After CBRE, Mr. Kirsch worked for a developer of urban infill design-forward residential lofts. Mr. Kirsch then engaged in his own urban and suburban condominium and single family detached housing ventures.

Mr. Kirsch was then selected as one of the two executives to run New York City-based developer The Clarett Group's Washington, DC business.

Mr. Kirsch has personally trained thousands of students and professionals across the US and around the world in Excel-based modeling for real estate transactions.

Mr. Kirsch holds an MBA in Real Estate from The Wharton School. Mr. Kirsch is also the co-author of the Fifth Edition of the leading real estate textbook, *Real Estate Finance and Investments: Risks and Opportunities*, along with Dr. Peter Linneman, the founding Chairman of The Wharton School's Real Estate Department.

Mr. Kirsch graduated with a BA in Communication from Stanford University.

CONTENT AUTHORSHIP

Training content is created by REFM founder Bruce Kirsch. Mr. Kirsch is an authority on real estate financial modeling. In addition, along with Dr. Peter Linneman, Mr. Kirsch is the co-author of the Fifth Edition of the real estate textbook, *Real Estate Finance and Investments: Risks and Opportunities*, and the associated REFAI Certification program.



Past Adjunct Faculty
in Real Estate
Georgetown University



MBA in Real Estate



Stanford
University

BA in Communication



CORPORATE CLIENTS INCLUDE

ASB Capital Management
CBRE Global Investors
Citibank
Clark Enterprises
Colony Northstar
Crescent Communities
Greystar
GTIS Partners
Jamestown LP
JBG Smith
JPMorgan Chase & Co.
Lubert-Adler
Madison Marquette
Peterson Companies
PGIM
PN Hoffman Realty
Prometheus Realty
Related Companies
Skanska USA
SEO Career
Vornado Realty Trust

UNIVERSITY CLIENTS INCLUDE

Columbia University
Cornell University
Emory University
George Mason University
Harvard University
New York University
Northwestern University
San Diego State University
Texas A&M University
University of Florida
Univ. of Southern California
The Wharton School
Yale School of Management

WHY CHOOSE REFM?

- Our training content is continually updated based on our consulting to real estate practitioners
- Our efficient teaching and learning format makes the most of contact hours
- Our signature interactive, high-engagement training style
- Our comprehension testing and Certification programs
- We do not invest directly in real estate, so we pose no potential conflicts to client businesses.

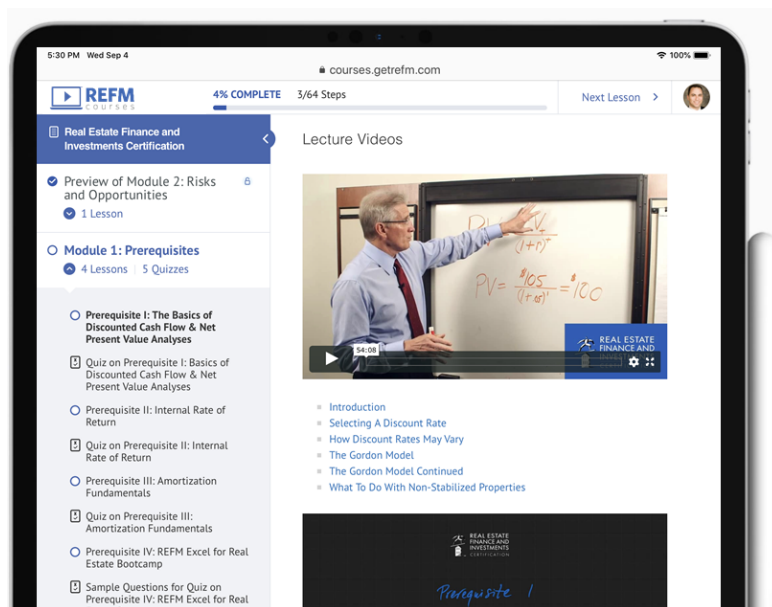
REFM CERTIFICATION PROGRAM IN EXCEL FOR REAL ESTATE



Since 2011, REFM's Certification Program In Excel For Real Estate has measured proficiency in operating skillfully and efficiently in Microsoft Excel for the specific purpose of real estate transaction and partnership modeling analysis. Thousands of Certifications have been granted.







REAL ESTATE FINANCE AND INVESTMENTS CERTIFICATION (REFAI®)

REFAI is a new, rigorous 15-week self-study program featuring Dr. Peter Linneman. Learn more about REFAI here.



POPULAR 2-DAY AGENDAS

Beginner / Advanced





	Page	Hours	Slides	Hands-On	Level*	Applicable Property
DAY ONE: Beginner						
Identifying Risks and Opportunities in Commercial Real Estate	15	1			Easy	All income-producing and unit-sales based
Demystifying the Excel Pro-Forma: What It Is and How To Master It	18	1			Easy	All income-producing and unit-sales based
Real Estate Development Modeling Basics	19	1			Easy	All income-producing and unit-sales based
Mixed-Use Apartment/Multi-family Building Development Modeling	31	4			Medium/ Hard	Multi-family, retail
DAY TWO: Advanced						
Single Transaction Equity Joint Venture Partnership and Waterfall Modeling (Level 3) Bootcamp	41	4			Medium/ Hard	All income-producing and unit-sales based
Mixed-Use For Sale Condominium Building Development Modeling	32	4			Medium/ Hard	Condominium, retail

* Level of difficulty is a relative rating of the subject course within the full spectrum of the entire REFM catalog. Every training participant will have their own perception of the level of difficulty given their specific educational background and experience.



POPULAR 2-DAY AGENDAS

"The New York Course"

						
	Page	Hours	Slides	Hands-On	Level*	Applicable Property
DAY ONE						
Real Estate Analysis Excel Toolkit	25	5	<input checked="" type="checkbox"/>		Medium	All income-producing and unit-sales based
Mixed-Use Apartment/Multi-Family Building Development Modeling	31	4	<input checked="" type="checkbox"/>		Medium/ Hard	Multi-family, retail
DAY TWO						
Single Transaction Equity Joint Venture Partnership and Waterfall Modeling Bootcamp (Level 3 Certification)	41	4	<input checked="" type="checkbox"/>		Medium/ Hard	All income-producing and unit-sales based
Core and Core-Plus Real Estate Private Equity Fund Modeling	42	4	<input checked="" type="checkbox"/>		Medium/ Hard	All income-producing

* Level of difficulty is a relative rating of the subject course within the full spectrum of the entire REFM catalog. Every training participant will have their own perception of the level of difficulty given their specific educational background and experience.

TRAININGS AT A GLANCE:







Real Estate Principles & Key Concepts

	Page	Hours	Slides	Hands-On	Level*	Applicable Property
Introduction to the Real Estate Business	14	1			Easy	All income-producing and unit-sales based
Identifying Risks & Opportunities in Commercial Real Estate	15	1			Easy	All income-producing and unit-sales based
Real Estate Finance and Investments in 80 Minutes	16	1.5			Easy/ Medium	All income-producing and unit-sales based
How Real Estate Developers Price the Dirt	17	1			Easy	All income-producing and unit-sales based
Demystifying the Excel Pro-Forma: What It Is and How To Master It	18	1			Easy	All income-producing and unit-sales based
Real Estate Development Modeling Basics	19	1			Easy	All income-producing and unit-sales based
Truly Understanding Capitalization (Cap) Rates	20	1			Easy/ Medium	All income-producing
Truly Understanding IRR (Internal Rate of Return)	21	1			Medium	All income-producing and unit-sales based
Commercial Real Estate Business Fundamentals for Law Associates	22	4			Easy	All income-producing and unit-sales based
Real Estate Finance and Investments Certification (REFAI)	23	15			Medium/ Hard	All income-producing and unit-sales based

* Level of difficulty is a relative rating of the subject course within the full spectrum of the entire REFM catalog. Every training participant will have their own perception of the level of difficulty given their specific educational background and experience.

TRAININGS AT A GLANCE:

Financial Modeling Skills Foundations

	Page	Hours	Slides	Hands-On	Level*	Applicable Property
HP 12C Financial Calculator Skills For Real Estate Analysis	24	1			Easy/ Medium	All income-producing and unit-sales based
Real Estate Analysis Excel Toolkit	25	5			Medium	All income-producing and unit-sales based
Excel For Real Estate Bootcamp (Level 1 Certification)	26	4			Medium	All income-producing and unit-sales based
Real Estate Finance Bootcamp (Level 2 Certification)	27	4			Medium	All income-producing and unit-sales based
Job Interview Technical Modeling Test Training	28	5			Medium	Apartments and retail

* Level of difficulty is a relative rating of the subject course within the full spectrum of the entire REFM catalog. Every training participant will have their own perception of the level of difficulty given their specific educational background and experience.



TRAININGS AT A GLANCE:

Property-specific Transaction Modeling

	Page	Hours	Slides	Hands-On	Level*	Applicable Property
Stabilized Multi-Family Property Operating Projection and Acquisition Screening	29	4			Medium/ Hard	Multi-family
Multi-family Building Acquisition & Individual Unit Renovation Modeling	30	4			Medium/ Hard	Multi-family
Mixed-Use Apartment / Multi-Family Building Development Modeling	31	4 or 6			Medium/ Hard	Multi-family
Mixed-Use For-Sale Condominium Building Development Modeling	32	4 or 6			Medium/ Hard	Residential condominiums, retail
Multi-Tenant Commercial Property Acquisition Modeling with ARGUS Cash Flow Export Customization	33	3			Medium/ Hard	Office, industrial, retail
Office / Industrial Property Operating Projection and Acquisition Screening Analysis	34	4			Medium/ Hard	Office, industrial
Mixed-Use Office / Industrial Building Development Modeling	35	4 or 6			Medium/ Hard	Office, industrial
Commercial Space Comparative Lease Analysis From Both Landlord & Tenant Perspectives	36	2			Medium/ Hard	Office, industrial, retail
Hotel Property Acquisition and Renovation Modeling	37	4			Medium/ Hard	Hotel
Hotel Property Development Modeling	38	4 or 6			Medium/ Hard	Hotel
Retail Property Operating Projection and Acquisition Screening Analysis	39	4			Medium/ Hard	Retail
Retail Property Development Modeling	40	4 or 6			Medium/ Hard	Retail

TRAININGS AT A GLANCE:

Property-specific Transaction Modeling

	Page	Hours	Slides	Hands-On	Level*	Applicable Property
Single Family Rental Home Community Acquisition Modeling	41	4			Medium/ Hard	SFR communities
Single Family Rental Home Community Development	42	4 or 6			Medium/ Hard	SFR communities






Equity JVs and Private Funds

	Page	Hours	Slides	Hands-On	Level*	Applicable Property
Single Transaction Equity Joint Venture Partnership and Waterfall Modeling Bootcamp (Level 3 Certification)	43	4			Medium/ Hard	All income-producing and unit-sales based
Core and Core-Plus Private Equity Fund Modeling	44	4			Medium/ Hard	All income-producing






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TRAININGS AT A GLANCE:

Debt Financing and Note Modeling

	 Page	 Hours	 Slides	 Hands-On	 Level*	Applicable Property
Single Property Transaction Debt Financing Modeling	45	4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Medium/ Hard	All income-producing and unit-sales based
Distressed Commercial Mortgage Note Acquisition Modeling	46	1.5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Medium/ Hard	All income-producing

Advanced Debt and Equity Modeling

	 Page	 Hours	 Slides	 Hands-On	 Level*	Applicable Property
Advanced Single Transaction Debt and Equity Modeling	47	4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Hard	All income-producing and unit-sales based

* Level of difficulty is a relative rating of the subject course within the full spectrum of the entire REFM catalog. Every training participant will have their own perception of the level of difficulty given their specific educational background and experience.

INTRODUCTION TO THE REAL ESTATE BUSINESS



Easy



45 min



Slide Show

Applicable Real Estate

Property Types: All

income-producing and

unit-sales based

In this 45-minute session, you will learn about the constituent elements of the U.S. commercial real estate business through an easy-to-understand framework.

Topics covered include:

- the different types of real estate properties
- the different types of real estate investors and capital providers
- the types and sources of investment capital
- transaction capital structure
- the uses of capital
- real estate investment objectives
- the three main methods of valuing real estate properties.



IDENTIFYING RISKS AND OPPORTUNITIES IN COMMERCIAL REAL ESTATE



Easy



1 hour



Slide Show

Applicable Real Estate

Property Types: All

income-producing and

unit-sales based

In this 1-hour session, you will learn about the real estate cycle and how it creates risks and opportunities related to acquiring, operating and developing commercial real estate in the U.S. and internationally.

Topics covered include:

- the goal of real estate investment and development
- where the primary risks lie in the U.S. and abroad
- the biggest risks of all
- the primary ways to realize property value
- real estate cycles
- mitigating and accepting risk.



REAL ESTATE FINANCE AND INVESTMENTS IN 80 MINUTES



Easy/Medium



1.5 hour



Slide Show

Applicable Real Estate

Property Types: All

income-producing and

unit-sales based

In this 1.5-hour session, you will learn the foundations of real estate finance and investments as well as advanced topics.

Topics covered include:

- sources of capital
- types of equity and debt capital
- transaction capital structure
- debt financing, positive and negative leverage
- investment objectives
- investment methods
- valuation of properties
 - discounted cash flow (DCF) model
 - capitalization (cap) rate and comparable sales
 - replacement cost
 - residual land valuation
- operating property cash flow line item setups
- investment returns measurements
 - cap rate (yield on cost)
 - levered cash flow and net levered cash flow
 - cash-on-cash return
 - net present value (NPV)
 - multiple on equity
 - internal rate of return (IRR).



HOW REAL ESTATE DEVELOPERS PRICE THE DIRT



Easy



45 min



Hands-On



Slide Show

Applicable Real Estate

Property Types: All

income-producing and

unit-sales based

In this 45-minute session, you will learn how developers solve for what they should pay for a development site. You will learn the basics of real estate development residual land valuation for both income-producing assets and unit sales assets, as well as the principles of valuation through comparable sales (comps).

Topics covered include:

- developer control of project costs
- how land is different from other development costs
- preliminary residual land valuation by back of the envelope analysis
- secondary valuation by discounted cash flow (DCF) analysis
- replacement cost
- comparable sales.

Residual Land Valuation Basics

- Developers use residual land valuation as one method of deciding what to pay for a development site

Element	Developer's Internal Monologue
Estimated Income	What can I expect to receive in income (rent/sales)?
Less: Estimated Cost	What will it cost to build, operate and lease up/sell out?
Less: Required Return	What profit do investors need to make? *
= Residual Land Value	This is what I should pay for the contemplated project

* For income-producing properties, this is measured as Yield on Cost: NOI / Total Project Cost
For unit-sales projects, this is measured as Profit Margin: Net Cash Flow / Gross Sales Proceeds

www.GetREFM.com

REFM
Model for Success™

DEMYSTIFYING THE EXCEL PRO FORMA:

What It Is and How To Master It



Easy



1 hour



Slide Show

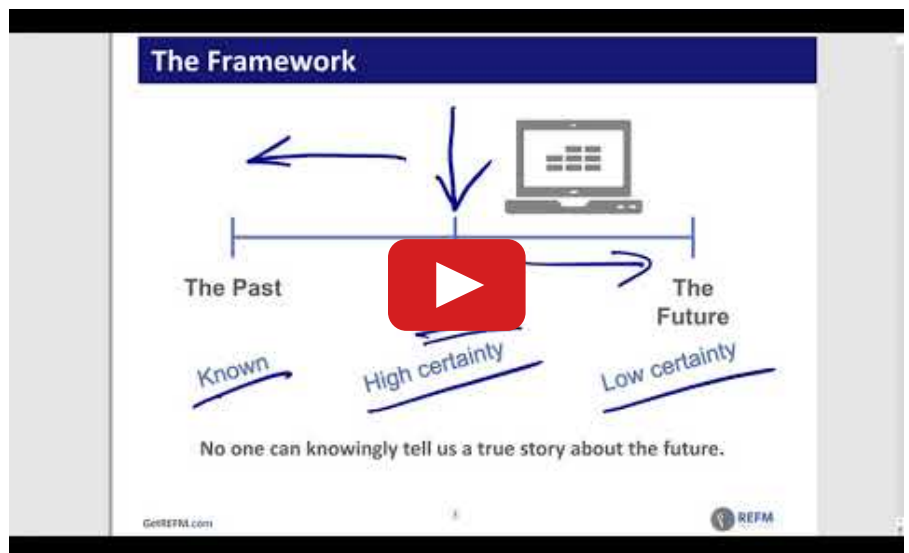
Applicable Real Estate

Property Types: All
income-producing and
unit-sales based

In this 1-hour session, you will learn how to break down the real estate pro forma (financial projection model) into its essential components, analyze the pieces individually in easy-to-understand language, and then re-assemble them into the original whole. The relationships between the constituent parts are explained so that you will intimately understand the entire spreadsheet and its various functions.

Topics covered include:

- what financial modeling is
- the purpose of the pro forma
- the importance of timing
- the time value of money and discounted cash flow (DCF) model
- pro-forma model worksheet types
- the "cardinal rules" of financial modeling
- best practices for when you inherit a spreadsheet model.



REAL ESTATE DEVELOPMENT MODELING BASICS



Easy



1 hour



Slide Show

Applicable Real Estate

Property Types: All

income-producing and

unit-sales based

In this 1-hour session, you will learn the fundamentals of financial modeling specifically for real estate development transactions.

Topics covered include:

- what is financial modeling is
- modeling fundamentals
- what makes ground-up development different from acquisitions
- the development project timeline phases:
 - pursuit and site control
 - pre-construction and entitlement
 - construction
 - post-construction and stabilization
- uses of funds and relative size and timing of costs
- sources of funds
- pro-forma (projection model) components.

Development Project Timeline – Office Tower with Below-Ground Parking

Phase	Pursuit/Site Control	Pre-Construction/Entitlement	Construction	Post Construction
Activities	Land selection Initial team Composites Preliminary Due Diligence Letter of Intent Negotiation Consent Typing/ Initial Deposit Final Due Diligence	Additional Design/ Design Approvals/Entitlements Building Permits	Postward Land closing Construction loan closing Building of the project	Leasing/Sale Tenant Improvements Stabilization Repayment of construction loan Disposition Repayment of outstanding balance of construction loan

RE
FM
Model for Success

"comps". Comps are similar transactions that have occurred

TRULY UNDERSTANDING CAPITALIZATION (CAP) RATES



Easy/Medium



45 min



Hands-On



Slide Show

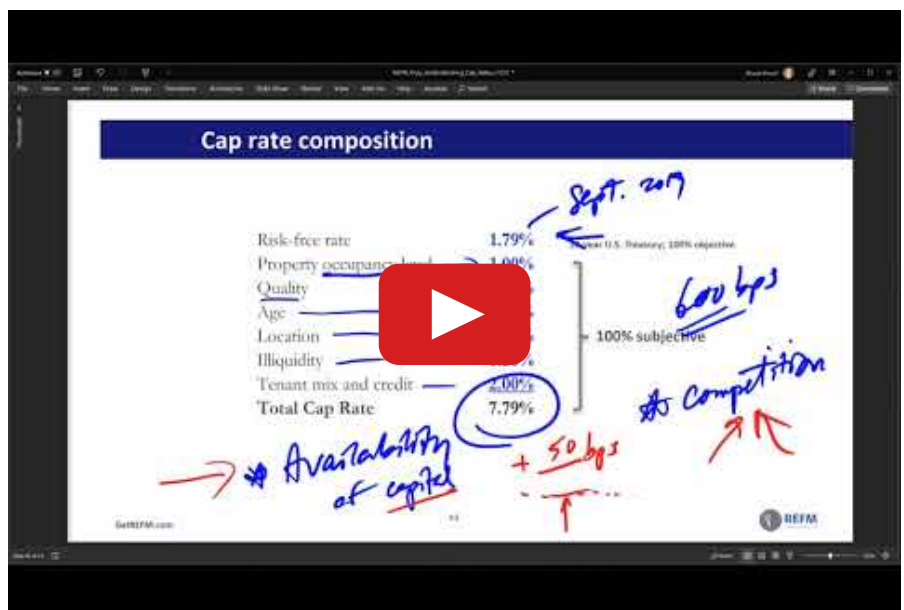
Applicable Real Estate

Property Types: All
income-producing and
unit-sales based

In this 45-minute session, you will learn all about commercial real estate property capitalization (cap) rates.

Topics covered include:

- definition and calculation of a cap rate
- going-in cap rate and subsequent year cap rates
- why NOI is used as the income measurement
- what cap rates reveal about properties
- cap rate composition
- why cap rates change
- how to back-solve to a cap rate with property value and NOI, and back-solve to property value with a cap rate and NOI
- cap rate and valuation multiple relationship
- how to select a future exit cap rate when performing a property valuation
- how to reconcile discrepancies in quoted cap rates for a closed deal
- where you can find cap rates for a certain market.



TRULY UNDERSTANDING IRR (INTERNAL RATE OF RETURN)



Medium



45 min



Hands-On



Slide Show

Applicable Real Estate

Property Types: All

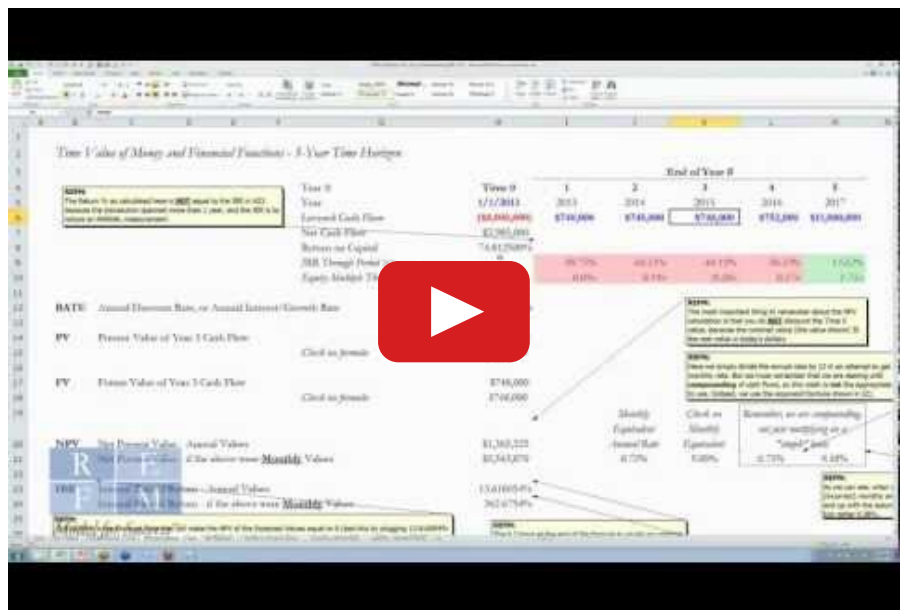
income-producing and

unit-sales based

In this 45-minute session, you will learn about the nature of the IRR calculation, and why it reacts the way it does in the various acquisition and development cases that are presented in spreadsheet form.

Topics covered include:

- time value of money and discounted cash flow (DCF) basics
- definition of internal rate of return
- how IRR changes over a transaction timeline from negative to positive
- cumulative and compounding nature of the IRR
- what the IRR does and does not tell us.



COMMERCIAL REAL ESTATE BUSINESS FUNDAMENTALS FOR LAW ASSOCIATES



Easy



4 hour



Slide Show

Applicable Real Estate

Property Types: All

income-producing and
unit-sales based

In this 4-hour session geared towards law associates new to real estate practice groups, you will learn about the major elements of the commercial real estate business. All business and technical terms will be defined and made open for Q&A in real time.

Topics covered include:

- types of commercial real estate:
 - properties
 - investors
 - sources of capital
 - equity
 - senior debt
 - junior debt
- uses of capital
 - acquisition
 - ground-up development
 - entitlement
 - repositioning
- investment objectives and methods:
 - income (maximizing cash flow and yield)
 - recouping of investment and profit taking
- valuation of real estate:
 - discounted cash flow and time value of money model
 - net operating income (NOI), cap rates and comparable sales model
 - replacement cost
 - residual land valuation
- operating cash flow line items for income-producing properties
- profit measurement/return on investment performance indicators
- basics of joint venture partner profit sharing through waterfall structures.

REAL ESTATE FINANCE AND INVESTMENTS CERTIFICATION (REFAI®)



Medium/Hard



15 Weeks



Hands-On



Slide Show

Applicable Real Estate

Property Types: All

income-producing and
unit-sales based



**REAL ESTATE
FINANCE AND
INVESTMENTS**
CERTIFICATION



The Real Estate Finance and Investments Certification (REFAI) from Linneman Associates and Real Estate Financial Modeling is an online rigorous educational self-study program that is focused on practical, high-impact outcomes for its candidates. The overarching goals of the program are to provide candidates with a solid theoretical and technical grounding in real estate finance and investments, and to help candidates become more critical thinkers with respect to the business of real estate across all property and transaction types.

The program curriculum is equal to that of "Real Estate Finance and Investment Analysis 101" semester-long courses delivered in a classroom format in top MBA and Masters in real estate programs.

The backbone of REFAI is the 5th Edition of the textbook *Real Estate Finance and Investments: Risks and Opportunities*, "the Blue Bible of real estate," authored by Dr. Peter Linneman and Bruce Kirsch. In circulation for 15 years and based on his Wharton classes, the book reflects Dr. Linneman's frustration with texts that concentrate excessively on theoretical detail and literature, while ignoring important aspects of financial analysis and decision making. This book balances the "real world" aspects of real estate finance without compromising key theoretical underpinnings. It covers the basic mathematics of real estate finance and investments, while stressing the ambiguity of decision making.

The book, and the REFAI program by extension, is an exploration of the key concepts of real estate finance and investment strategy, not a mere formulaic analysis of numbers designed to give employees "the answer" to any and all real estate investment decisions.

Holding the REFAI Certification signifies proficiency in this material and the ability to apply that knowledge by overlaying sound analytical frameworks on real world problems. Candidates must earn a minimum passing grade of 70% to complete the requirements for the Program and receive the Certification.

Full details on REFAI can be found [here](#).

HP 12C FINANCIAL CALCULATOR SKILLS FOR REAL ESTATE ANALYSIS

.....



Easy/Medium



1 hour



Hands-On



Slide Show

Applicable Real Estate

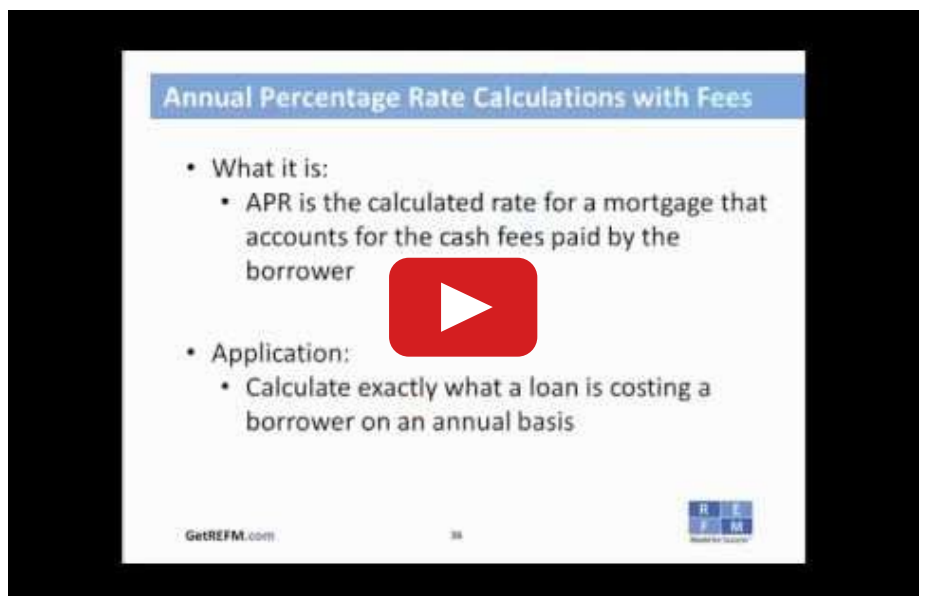
Property Types: All

income-producing and
unit-sales based

In this 1-hour session, you will learn how to leverage the most popular financial calculator for real estate analysis through hands-on exercises.

Topics covered include:

- financial registers
- simple and compound interest
- periodic and annual interest rates
- nominal and effective interest rate conversions
- how to calculate a weighted average
- present value (PV) and future value (FV)
- discounting future projected cash flows
- calculating net present value (NPV)
- calculating internal rate of return (IRR)
- calculating the loan annual percentage rate (APR)
- pricing a mortgage acquisition and calculating debt yield.



REAL ESTATE ANALYSIS EXCEL TOOLKIT



Medium



5 hour

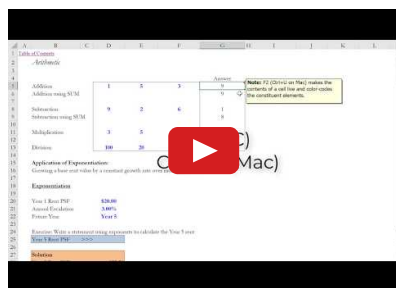


Hands-On

Applicable Real Estate

Property Types: All

income-producing and
unit-sales based



In this 5-hour session, you will learn the top 25+ Excel functions, tools and techniques that are most used in real estate analysis. Each topic and accompanying technique is isolated and taught with its own example, after which you will perform a topic-specific exercise. The use of keyboard shortcuts is emphasized.

Topics covered include:

- basic formula writing
- relative vs. absolute references
- dates
- advanced use of conditional statements
- financial functions
- mortgage amortization schedule
- projection formula writing
- formula auditing with trace
- dependents/precedents
- array lookup functions
- data tables for sensitivity analysis
- back-solving for maximum loan amount
- quality control checks
- debugging errors
- pivot tables
- goal seek
- basic macros
- circular references
- best practices

Excel techniques and functions taught include:

- formula writing
- cell anchoring using dollar signs/F4 key
- EOMONTH, EDATE
- IF, AND, OR, and combinations thereof
- COUNTIF, COUNTIFS
- SUMIF, SUMIFS
- VLOOKUP
- HLOOKUP
- ROW, ROWS
- COLUMN, COLUMNS
- INDEX, MATCH
- RATE
- PV, FV
- NPV, XNPV
- IRR, XIRR
- PMT, PPMT, IPMT
- CUMPRINC, CUMIPMT.

EXCEL FOR REAL ESTATE BOOTCAMP (LEVEL 1 CERTIFICATION)



Medium



4 hour



Hands-On

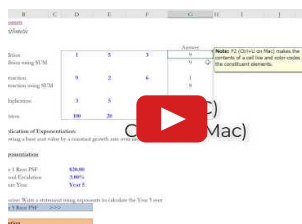
Applicable Real Estate

Property Types: All

income-producing and
unit-sales based



This is the training content for
Level 1 REFM Certification in
Excel for Real Estate. The test is
free and may be taken online at
anytime here.



In this 4-hour session, you will learn the basics of operating in Excel, as well as advanced techniques, specifically as they relate to commercial real estate analysis. Each topic and accompanying technique is isolated and taught with its own example, after which participants will perform a topic-specific exercise. The use of keyboard shortcuts is emphasized.

Topics covered include:

- spreadsheet and formula basics
- arithmetic (SUM) and rounding (ROUND, ROUNDUP, ROUNDDOWN)
- basic statistics (MAX, MIN, AVERAGE, MEDIAN)
- relative vs. absolute cell references (F4 key)
- inserting and deleting rows and columns
- creating summary tables (SUMIF, SUMIFS, COUNTIF, COUNTIFS)
- formatting cell values including custom formatting
- conditional cell formatting
- array lookup functions (VLOOKUP, HLOOKUP)
- format painting
- paste special
- transpose
- dates and timelines (EOMONTH, EDATE)
- conditional statements and how to nest them (IF, AND, OR and combinations thereof)
- financial functions for compounding and discounting (RATE, PV, FV, NPV, XNPV)
- internal rate of return (IRR, XIRR)
- mortgage payment calculation (PMT, PPMT, IPMT, CUMPRINC, CUMIPMT)
- formula auditing
- data tables for sensitivity analysis
- circular references
- best practices.

REAL ESTATE FINANCE BOOTCAMP (LEVEL 2 CERTIFICATION)



Medium



4 hour



Hands-On

Applicable Real Estate

Property Types: All

income-producing and
unit-sales based



This is the training content for
Level 2 REFM Certification in
Excel for Real Estate. The test is
free and may be taken online at
anytime here.

Today (Time 0)	Year 1	Year 2	Year 3	Year 4
(\$1,000,000.00)	\$60,000.00	\$60,000.00	\$60,000.00	=\$1,111 + \$1,111.27
	\$0.00	\$1,800.00	\$3,600.00	
	\$5,000.00	\$5,000.00	\$5,000.00	\$7,000.00
	\$65,000.00	\$67,800.00	\$69,600.00	\$72,500.00
	N/A	8.50%	8.50%	8.50%
	6.50%	6.97%	7.35%	
				\$1,250,000

Today (Time 0)	Year 1	Year 2	Year 3	Year 4
(\$1,000,000.00)	\$65,000.00	\$67,800.00	\$69,600.00	\$1,322,263.62
\$524,517.62				
	7.00%	7.25%	7.50%	8.00%
	\$60,797.66	\$59,649.48	\$58,462.01	\$55,066.29

In this 4-hour session, you will learn the foundations of real estate finance as well as advanced techniques and topics as applied in Excel. Each topic and accompanying technique is isolated and taught with its own example, after which participants will perform a topic-specific exercise.

Topics covered include:

- the time value of money model
- the discounted cash flow model
- internal rate of return (IRR)
- mortgage payment schedule construction
- refinancing/interest-only scenario payment calculation
- residential investment property refinancing case study
- commercial property maximum loan amount calculation
- residual land valuation of development parcels
- future net operating income calculation
- transaction capital structures
- financing development transactions
- senior construction loan sizing
- multiple equity investor draw modeling
- profit sharing discussion
- preferred return, internal rate of return waterfall and promote theory introduction.

Excel techniques and functions taught include:

- compounding and discounting
- net present value (NPV) and XNPV
- internal rate of return (IRR) and XIRR
- conditional statements
- mortgage payment (PMT)
- principal payment (PPMT) and interest payment (IPMT)
- minimum (MIN) and maximum (MAX).

JOB INTERVIEW TECHNICAL MODELING TEST TRAINING

.....



Medium



5 hour



Hands-On

Applicable Real Estate

Property Types: Multi-family,
retail

In this 5-hour session, you will undergo a simulation of a timed job interview technical modeling Excel test similar to those given by top employers. You are provided with a set of assumptions and you are tasked with building out a 7-year annual projection model for the ground-up development of a mixed-use apartment and retail building asset.

When you are done with the project, you will create two-way data tables to run investment performance sensitivity analyses on key inputs. You must also answer the following questions from the completed projection that you construct:

1. What is the going-in cap rate for this transaction in Elapsed Year 5?
2. What is the Elapsed Year 5 cash-on-cash return?
3. Assuming a project annual discount rate of 15%, does the project create value according to the NPV calculation on an unlevered basis? On a levered basis?
4. What is the Debt Service Coverage Ratio of the Permanent Loan in Elapsed Year 5?
5. What is the total profit to the Sponsor?

Topics covered include:

- complex debt structuring with both cash interest and accrued interest components
- two-player equity joint venture structure with preferred return and an IRR catch-up to the sponsor
- refinancing at stabilization
- disposition
- analysis of returns.

STABILIZED APARTMENT/MULTI-FAMILY PROPERTY OPERATING PROJECTION AND ACQUISITION SCREENING ANALYSIS

.....



Medium/Hard



4 hour



Hands-On

Applicable Real Estate

Property Type: Multi-family

In this 4-hour session, you will learn the industry-standard operating statement line item set-up structure for apartment properties, how to project annual operating cash flows, and how to screen the acquisition of a property on a levered basis given an assumed purchase price and targeted returns levels.

Topics covered include:

- the nature of all income and expense line items from Gross Potential Rent (GPR) through Before-Tax Levered Cash Flow
- projection formula modeling.

In the first part of the tutorial, using a pre-formatted operating cash flow tab, you will construct the annual operating projection. Projection formula mathematical descriptions are provided to guide your Excel formula construction. In the second part of the tutorial, you will take the NOI line and weave it into a pre-formatted acquisition analysis screening tab that integrates purchase, sale, debt and equity elements.

The sections of the second part of the analysis are:

- uses of funds
- sources of funds (sponsor equity, third party investor equity, and senior acquisition loan)
- unlevered cash flow projection
- debt schedule
- levered cash flow projection
- sensitivity tables
- levered summary.

The resulting unlevered and levered cash flow returns metrics are net cash flow, IRR, multiple on equity and NPV, allowing you to assess the valuation of the property. In addition, a levered summary table is constructed to evaluate returns for multiple hold durations side-by-side.

Instructor support is provided, and an unlocked solution set is included so that you can check your work along the way.

APARTMENT / MULTI-FAMILY BUILDING ACQUISITION & INDIVIDUAL UNIT RENOVATION MODELING

.....



Medium/Hard



4 hour



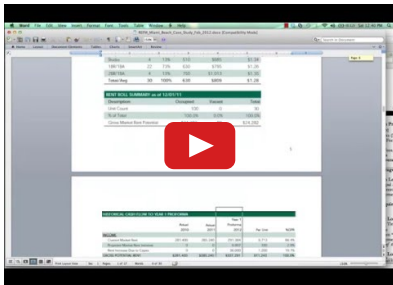
Hands-On



Slide Show

Applicable Real Estate

Property Type: Multi-family



In this 4-hour session, you will learn the collection of technical skills for the value-add pro-forma (projection) modeling for the acquisition and individual unit renovations of a rental apartment building. The principles and skills taught for how to model renovation and continued property operation apply equally to small properties and 1,000-unit complexes.

To set the proper skills and knowledge foundation, you will first learn about formula writing involving conditional statements, as well as REFM's generic projection formula framework and the powerful OFFSET function.

To facilitate your learning, you will begin with a pre-populated rent roll in Excel based on a sample property offering memorandum. You will then input variable values on a pre-formatted assumptions tab, then derive and fill in line item projection formulas on a pre-formatted monthly cash flow tab, and derive and fill in formulas on a pre-formatted annual cash flow summary report.

Topics covered include:

- formula writing involving conditional statements
- generic projection formula writing
- integration of historical property data and existing rent roll into your pro-forma
- modeling of the unit renovation program
- modeling of any operating expense savings from the renovation/ greening of apartment units
- modeling of senior acquisition loan financing, the residual equity requirement, and a permanent take-out loan/refinancing
- property disposition
- sensitivity analysis around key variables using 2-way data tables.

Instructor support is provided, and an unlocked solution set is included so that you can check your work along the way.

MIXED-USE APARTMENT / MULTI-FAMILY BUILDING DEVELOPMENT MODELING

.....



Medium/Hard



4 or 6 hour



Hands-On

Applicable Real Estate

Property Types: Multi- family,
retail

In this 4- or 6-hour session, you will learn the collection of technical skills for the pro-forma (projection) modeling for the ground-up development, operation and sale of a mixed-use rental apartment building with ground-floor retail and income-producing parking.

To set the proper skills and knowledge foundation, you will first learn about formula writing involving conditional statements, as well as REFM's generic projection formula framework. To facilitate your learning, you will begin with pre-formatted tabs for lot and building information for a subject development site, apartment unit mix, and capital structure.

With transaction base case assumptions provided for you, you will then derive and fill in line item projection formulas on a standard, pre-formatted monthly sources and uses of funds tab. Next, you will derive and fill in line item projection formulas on a standard, pre-formatted monthly cash flow tab. You will wire the tabs together as applicable. When you have completed all of the hands-on modeling, you will have a fully-working 6-tab model that ends at before-tax levered cash flow.

The advanced capital structure you will model includes:

- sponsor, partner, and third party investor equity
- mezzanine loan
- senior construction loan.

Topics covered include:

- site and building information
- apartment unit mix
- pre-, during- and post-construction project timing elements
- transaction capital structure
- formula writing involving conditional statements
- cash flow projection formula writing
- uses of funds: land and acquisition costs, hard costs, soft costs, FF&E costs, financing costs
- sources of funds: equity, debt
- cash flows from residential, parking, and retail
- capitalized valuation for sale
- investment returns
- residual land valuation.

Instructor support is provided, and an unlocked solution set is included so that you can check your work along the way.

MIXED-USE FOR-SALE CONDOMINIUM BUILDING DEVELOPMENT MODELING



Medium/Hard



4 or 6 hour

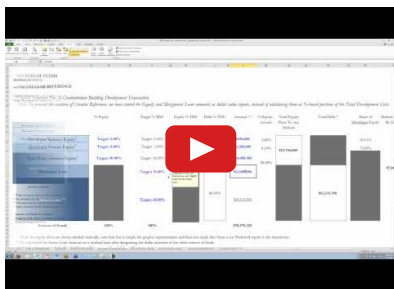


Hands-On

Applicable Real Estate

Property Types:

Residential condominiums,
retail



In this 4- or 6-hour session, you will learn the collection of technical skills for the pro-forma (projection) modeling for the ground-up development of a residential for-sale condominium building with for-sale parking and income-producing ground-floor retail.

To set the proper skills and knowledge foundation, you will first learn about formula writing involving conditional statements, as well as REFM's generic projection formula framework. To facilitate your learning, you will begin with pre-formatted tabs for lot and building information for a subject development site, residential unit mix, and capital structure.

With transaction base case assumptions provided for you, you will then derive and fill in line item projection formulas on a standard, pre-formatted monthly sources and uses of funds tab. Next, you will derive and fill in line item projection formulas on a standard, pre-formatted monthly cash flow tab. You will wire the tabs together as applicable. When you have completed all of the hands-on modeling, you will have a fully-working 6-tab model that ends at before-tax levered cash flow.

The advanced capital structure you will model includes:

- sponsor, partner, and third party investor equity
- mezzanine loan
- senior construction loan

Topics covered include:

- site and building information
- condominium unit mix
- pre-, during- and post-construction project timing elements
- transaction capital structure
- formula writing involving conditional statements
- cash flow projection formula writing
- uses of funds: land and acquisition costs, hard costs, soft costs, FF&E costs, financing costs
- sources of funds: equity, debt
- cash flows and returns: residential, parking, retail
- capitalized valuation of retail component for sale
- investment returns
- residual land valuation.

Instructor support is provided, and an unlocked solution set is included so that you can check your work along the way.

MULTI-TENANT COMMERCIAL PROPERTY ACQUISITION MODELING WITH ARGUS CASH FLOW EXPORT CUSTOMIZATION

.....



Medium/Hard



3 hour



Hands-On

Applicable Real Estate

Property Types: Office, industrial, retail

In this 3-hour session, you will learn the collection of technical skills for the modeling of the acquisition, operation and disposition of an existing multi-tenant commercial (office, industrial or retail) property. You will also learn the mathematical mechanics behind how ARGUS works, and how to integrate an ARGUS cash flow projection export into Excel to perform levered, equity partnership and sensitivity analyses.

Topics covered include:

- standard commercial property operating projection set-up
- integration of historical property data and existing rent roll into your pro-forma
- modeling of weighted average expected values based on probability assumptions for future lease expirations or renewals
- how to quickly build a live Excel-based pro-forma valuation model that links directly to a 11-year cash flow projection exported into Excel from ARGUS
- modeling of acquisition loan financing, residual equity requirement, and permanent take-out loan/refinancing
- equity partnership modeling
- sensitivity analysis on key variables
- property disposition
- presentation of transaction returns indicators in an institutional investor-friendly format.

Instructor support is provided, and an unlocked solution set is included so that you can check your work along the way.

OFFICE PROPERTY OPERATING PROJECTION AND ACQUISITION SCREENING ANALYSIS *



Medium/Hard



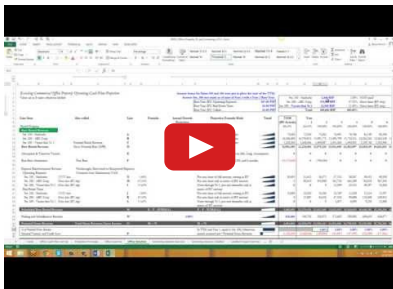
4 hour



Hands-On

Applicable Real Estate

Property Types: Office,
Industrial



* This content is also available with a sole focus on the industrial property type.

In this 4-hour session, you will learn the industry-standard operating projection line item set-up structure for commercial office properties, how to project annual operating cash flows, and how to screen the acquisition of a property on a levered basis given an assumed purchase price and targeted returns levels.

Topics covered include:

- the nature of all income and expense line items from Gross Potential Rent (GPR) through Before-Tax Levered Cash Flow
- lease types and reimbursement dynamics
- projection formula modeling.

There are three Suites in the property. The assumptions to be used are that leases for Suites 100 and 200 were put in place at the start of the trailing twelve months, and extend beyond the analysis end date, and that Suite 300, which comprises 36% of the rentable SF, is currently vacant and will remain vacant through the end of Year 1. Suite 300 rent will commence at the start of Year 2 with Year 2 Base Year, and its lease will extend beyond the projection analysis end date. Suite 100 is a triple-net (NNN) lease, and Suites 200 and 300 are Gross leases (Base Year expense stop).

In the first part of the tutorial you will build out the operating projection. Projection formula mathematical descriptions are provided to guide your Excel formula construction. In the second part of the tutorial you will weave the NOI line into an acquisition analysis screening tab that integrates purchase, sale, debt and equity elements.

The two senior debt financing options modeled are an amortizing loan without any future funding amounts available for the Year 1-2 tenant improvements and leasing commissions related to Suite 300, and an interest-only loan with delayed draw capacity for the near-term capital costs.

The sections of this analysis are:

- uses of funds
- sources of funds (sponsor equity, third party investor equity, senior acquisition Loan)
- unlevered cash flow projection
- debt schedule
- levered cash flow projection
- sensitivity tables.

The resulting unlevered and levered cash flow returns metrics are net cash flow, IRR, multiple on equity and NPV, allowing you to assess the valuation of the property. In addition, a levered summary table is constructed to evaluate returns for multiple hold durations side-by-side.

Instructor support is provided, and an unlocked solution set is included so that you can check your work along the way.

MIXED-USE OFFICE / INDUSTRIAL BUILDING DEVELOPMENT MODELING



Medium/Hard



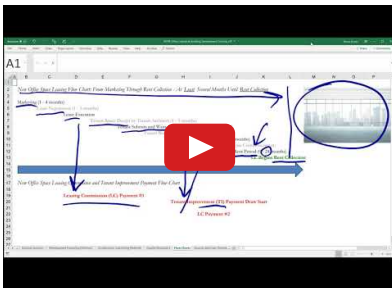
4 or 6 hour



Hands-On

Applicable Real Estate

Property Types: Office,
industrial, retail



In this 4- or 6-hour session, you will learn the collection of technical skills for the pro-forma (projection) modeling for the ground-up development, operation and sale of an office or industrial property (if office, mixed-use with retail and income-producing parking components).

To set the proper skills and knowledge foundation, you will first learn about formula writing involving conditional statements, as well as REFM's generic projection formula framework. To facilitate your learning, you will begin with pre-formatted tabs for lot and building information for a subject development site, and for capital structure.

With transaction base case assumptions provided for you, you will then derive and fill in line item projection formulas on a standard, pre-formatted monthly sources and uses of funds tab. Next, you will derive and fill in line item projection formulas on a standard, pre-formatted monthly cash flow tab. You will wire the tabs together as applicable. When you have completed all of the hands-on modeling, you will have a fully-working 6-tab model that ends at before-tax levered cash flow.

The advanced capital structure you will model includes:

- sponsor, partner, and third party investor equity
- mezzanine loan
- senior construction loan.

Topics covered include:

- site and building information
- pre-, during- and post-construction timing elements
- transaction capital structure
- formula writing involving conditional statements
- cash flow projection formula writing
- uses of funds: land and acquisition costs, hard & soft costs, FF&E and financing costs
- sources of funds: equity, debt
- Full Service and NNN lease reimbursement structures
- cash flows from office (and parking and retail) or industrial
- capitalized valuation for sale
- investment returns
- residual land valuation.

Instructor support is provided, and an unlocked solution set is included so that you can check your work along the way.

COMMERCIAL SPACE COMPARATIVE LEASE ANALYSIS FROM BOTH LANDLORD & TENANT PERSPECTIVES



Medium/Hard



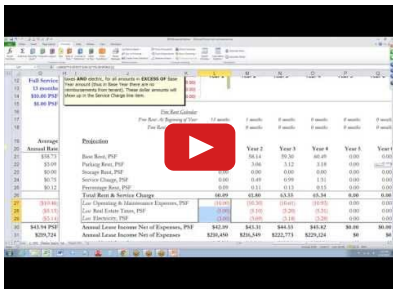
2 hour



Hands-On

Applicable Real Estate

Property Types: Office,
industrial, retail



In this 2-hour session, you will learn the collection of technical skills for the modeling of Full Service, Gross and NNN (triple net) commercial space leases from the perspective of both the landlord and the tenant.

Topics covered include:

- formula writing involving conditional statements
- generic projection formula writing
- rent calculation using percentage-based escalations and dollar-based steps
- free rent
- parking and storage rent
- leasing commissions (LCs)
- tenant improvements (TIs) and other expenditures
- operating expenses and real estate taxes
- reimbursements
- cancellation options and penalties
- net cash flow, and NPV of net cash flow
- lease Profit & Loss statement impact to tenant
- rent vs. own analysis from the tenant's perspective.

HOTEL PROPERTY ACQUISITION AND VALUE-ADD RENOVATION MODELING



Medium/Hard



4 hour



Hands-On

Applicable Real Estate

Property Type: Hotel

In this 4-hour session, you will learn the collection of technical skills for the pro-forma (projection) modeling for the acquisition, operation, rooms renovation, and sale of a full-service hotel. The principles and skills taught apply to hotels of other levels of service.

To set the proper skills and knowledge foundation, you will first learn about formula writing involving conditional statements, as well as REFM's generic projection formula framework and the powerful OFFSET function.

To facilitate your learning, you will input variable values on a pre-formatted assumptions tab, then derive and fill in line item projection formulas on a pre-formatted monthly cash flow tab, and derive and fill in formulas on a pre-formatted annual cash flow summary report.

Topics covered include:

- formula writing involving conditional statements
- cash flow projection formula writing
- integrating historical property operating data into your pro-forma
- modeling of the rooms renovation program
- modeling of senior acquisition loan financing, the residual equity requirement, and a permanent take-out loan/refinancing
- property disposition
- valuation and investment returns
- sensitivity analysis modeling around key variables using 2-way data tables.

Instructor support is provided, and an unlocked solution set is included so that you can check your work along the way.

HOTEL PROPERTY DEVELOPMENT MODELING

.....



Medium/Hard



4 or 6 hour



Hands-On

Applicable Real Estate

Property Types: Hotel,
retail

In this 4- or 6-hour session, you will learn the collection of technical skills for the pro-forma (projection) modeling for the ground-up development, operation and sale of a full-service hotel with income-producing parking and a retail component.

To set the proper skills and knowledge foundation, you will first learn about formula writing involving conditional statements, as well as REFM's generic projection formula framework. To facilitate your learning, you will begin with pre-formatted tabs for lot and building information for a subject development site, building size and capital structure.

With transaction base case assumptions provided for you, you will then derive and fill in line item projection formulas on a standard, pre-formatted monthly sources and uses of funds tab. Next, you will derive and fill in line item projection formulas on a standard, pre-formatted monthly cash flow tab. You will wire the tabs together as applicable. When you have completed all of the hands-on modeling, you will have a fully-working 6-tab model that ends at before-tax levered cash flow.

The advanced capital structure you will model includes:

- sponsor, partner and third party investor equity
- mezzanine loan
- senior construction loan

Topics covered include:

- site and building information
- space use programming
- pre-, during- and post-construction project timing elements
- transaction capital structure
- formula writing involving conditional statements
- generic projection formula writing
- uses of funds: land and acquisition costs, hard costs, soft costs, FF&E costs, financing costs
- sources of funds: equity, debt
- cash flows from hotel and retail
- capitalized valuation for sale
- investment returns
- residual land valuation.

Instructor support is provided, and an unlocked solution set is included so that you can check your work along the way.

RETAIL PROPERTY OPERATING PROJECTION AND ACQUISITION SCREENING ANALYSIS

.....



Medium/Hard



4 hour



Hands-On

Applicable Real Estate

Property Type: Retail

In this 4-hour session, you will learn the industry-standard operating projection line item set-up structure for multi-tenant retail properties, how to project annual operating cash flows, and how to screen the acquisition of a property on a levered basis given an assumed price and target returns levels.

Topics covered include:

- the nature of all income and expense line items from Gross Potential Rent (GPR) through Before-Tax Levered Cash Flow
- lease types and reimbursement dynamics
- projection formula modeling.

There are three Suites in the hypothetical property. The assumptions to be used are that the leases for in-line Suite 100 and anchor Suite 200 were put in place at the start of the trailing twelve months and extend beyond the projection analysis end date. Suite 300, which comprises 24% of the center square footage, is currently vacant and will remain vacant through the end of Year 1. Suite 300 rent will start at the start of Year 2 with a Year 2 Base Year and its tenancy will extend beyond the projection analysis end date.

While Suites 100 and 200 are triple-net (NNN) leases, the lease for Suite 300 is a Gross lease (Base Year expense stop) to provide you with exposure to full service lease reimbursement calculations.

In the first part of the tutorial you will build out the operating projection. Projection formula mathematical descriptions are provided to guide your Excel formula construction. In the second part of the tutorial you will weave the NOI line into an acquisition analysis screening tab that integrates purchase, sale, debt and equity elements.

The two senior debt financing options modeled are an amortizing loan without any future funding amounts available for the Year 1-2 tenant improvements and leasing commissions related to Suite 300, and an interest-only loan with delayed draw capacity for the near-term capital costs.

The sections of the second part of the analysis are:

- uses of funds
- sources of funds (sponsor equity, third party investor equity, senior acquisition Loan)
- unlevered cash flow projection
- debt schedule
- levered cash flow projection
- sensitivity tables.

The resulting levered cash flow returns metrics are net cash flow, IRR, multiple on equity and NPV, allowing you to assess the valuation of the property. In addition, a levered summary table is constructed to evaluate returns for multiple hold durations side-by-side.

Instructor support is provided, and an unlocked solution set is included so that you can check your work along the way.

RETAIL PROPERTY DEVELOPMENT MODELING

.....



Medium/Hard



4 or 6 hour



Hands-On

Applicable Real Estate

Property Type: Retail

In this 4- or 6-hour session, you will learn the collection of technical skills for the pro-forma (projection) modeling for the ground-up development, operation and sale of a multi-tenant retail plaza. The principles and skills taught also apply to single tenant properties.

To set the proper skills and knowledge foundation, you will first learn about formula writing involving conditional statements, as well as REFM's generic projection formula framework. To facilitate your learning, you will begin with pre-formatted tabs for lot and building information for a subject development site, building size and capital structure.

With transaction base case assumptions provided for you, you will then derive and fill in line item projection formulas on a standard, pre-formatted monthly sources and uses of funds tab. Next, you will derive and fill in line item projection formulas on a standard, pre-formatted monthly cash flow tab. You will wire the tabs together as applicable. When you have completed all of the hands-on modeling, you will have a fully-working 6-tab model that ends at pre-income tax cash flow to equity.

The advanced capital structure you will model includes:

- sponsor, partner, and third party investor equity
- mezzanine loan
- senior construction loan.

Topics covered include:

- site and building information
- space programming
- pre-, during- and post-construction project timing elements
- transaction capital structure
- formula writing involving conditional statements
- cash flow projection formula writing
- uses of funds: land and acquisition costs, hard costs, soft costs, FF&E costs, financing costs
- sources of funds: equity, debt
- cash flows from retail
- capitalized valuation for sale
- investment returns
- residual land valuation.

Instructor support is provided, and an unlocked solution set is included so that you can check your work along the way.

SINGLE FAMILY HOUSING RENTAL COMMUNITY ACQUISITION MODELING

.....



Medium/Hard



4 or 6 hour



Hands-On

Applicable Real Estate

Property Type: SFR rental communities

In this 4- or 6-hour session, you will learn the industry-standard operating statement line item set-up structure for single family rental home communities, how to project annual operating cash flows, and how to screen the acquisition of a community on a tranching, levered basis given an assumed purchase price and targeted returns levels.

In the first part of the tutorial, using a pre-formatted operating cash flow tab, you will construct the annual operating projection, making sure you understand the nature of all income and expense line items from Gross Potential Rent (GPR) through Before-Tax Levered Cash Flow. Projection formula mathematical descriptions are provided to guide your Excel formula construction.

In the second part of the tutorial, you will take the NOI line and weave it into a pre-formatted acquisition analysis screening tab that integrates purchase, sale, debt and equity elements.

The sections of the second part of the analysis are:

- uses of funds
- sources of funds (sponsor equity, third party investor equity, and senior acquisition loan)
- unlevered cash flow projection
- debt schedule
- levered cash flow projection
- sensitivity tables
- levered summary.

The resulting unlevered and levered cash flow returns metrics are net cash flow, IRR, multiple on equity and NPV, allowing you to assess the valuation of the property. In addition, a levered summary table is constructed to evaluate returns for multiple hold durations side-by-side.

Instructor support is provided, and an unlocked solution set is included so that you can check your work along the way.

SINGLE FAMILY HOUSING RENTAL COMMUNITY DEVELOPMENT MODELING

.....



Medium/Hard



4 or 6 hour



Hands-On

Applicable Real Estate

Property Type: SFR rental communities

In this 4- or 6-hour session, you will learn the collection of technical skills for the pro-forma (projection) modeling for the ground-up development, operation and sale of a SFR community.

To set the proper skills and knowledge foundation, you will first learn about formula writing involving conditional statements, as well as REFM's generic projection formula framework. To facilitate your learning, you will begin with pre-formatted tabs for lot and building information for a subject development site, building size and capital structure.

With transaction base case assumptions provided for you, you will then derive and fill in line item projection formulas on a standard, pre-formatted monthly sources and uses of funds tab. Next, you will derive and fill in line item projection formulas on a standard, pre-formatted monthly cash flow tab. You will wire the tabs together as applicable. When you have completed all of the hands-on modeling, you will have a fully-working 6-tab model that ends at pre-income tax cash flow to equity.

The advanced capital structure you will model includes:

- sponsor, partner, and third party investor equity
- mezzanine loan
- senior construction loan.

Topics covered include:

- site information
- housing unit mix
- pre-, during- and post-construction project timing elements
- transaction capital structure
- formula writing involving conditional statements
- cash flow projection formula writing
- uses of funds: land and acquisition costs, hard costs, soft costs, common element FF&E costs, financing costs
- sources of funds: equity, debt
- capitalized valuation for sale
- investment returns
- residual land valuation.

Instructor support is provided, and an unlocked solution set is included so that you can check your work along the way.

SINGLE TRANSACTION EQUITY JOINT VENTURE PARTNERSHIP & WATERFALL MODELING BOOTCAMP(LEVEL 3 CERTIFICATION)



Medium/Hard



4 hour



Hands-On



Slide Show

Applicable Real Estate

Property Types: All income producing and unit sales-based

LEVEL THREE



CERTIFIED

This is the training content for Level 3 REFM Certification in Excel for Real Estate. The test is free and may be taken online at anytime here.



In this 4-hour session, you will learn about how to model equity joint venture partnerships for individual property transactions, both developments and acquisitions. "Dollars in" (capital contributions) and "dollars out" (partitioned levered cash flows) to all equity players will be studied in detail.

Topics covered include:

- the rationale behind targeting disproportionate returns to the deal sponsor
- how to achieve disproportionate returns through fees and cash flow splits
- preferred return overview
- preferred return variations with respect to priority of payment
- preferred return in context
 - payment types A, B and C
- nature of preferred return
 - non-compounded and compounded
 - non-cumulative and cumulative
- waterfall distribution overview
- promote (carried interest) mechanism overview and modeling
- internal rate of return (IRR) -based hurdles
- 3-tier waterfall modeling
- double-promote, 5-tier waterfall modeling
- alternate compounding periods: monthly, daily, quarterly
- sample partnership structures.

Instructor support is provided, and an unlocked solution set is included so that you can check your work along the way.

CORE AND CORE-PLUS PRIVATE EQUITY FUND MODELING



Medium/Hard



4 hour



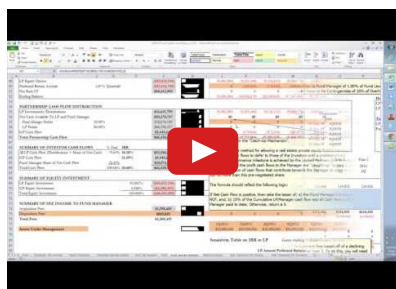
Hands-On



Slide Show

Applicable Real Estate

Property Types: All income producing



In this 4-hour session, you will learn big picture real estate private equity fund basics, the general legal structure of funds based in the U.S., and how to model transaction-level, transaction partner-level, fund-level, general partner (GP) and limited partner (LP) projections for core- and core-plus real estate private equity funds.

To set the proper skills and knowledge foundation, you will first learn about formula writing involving conditional statements, as well as REFM's generic projection formula framework.

To facilitate your learning, you will begin with a pre-formatted prototypical individual transaction tab, on which you will derive and fill in line item projection formulas starting at Net Operating Income and ending at Levered Cash Flow. Interest-only financing is assumed.

Next, on a pre-formatted fund-level tab, you will derive and fill in line item projection formulas starting at Investment Net Cash Flow and ending at pre-income tax partner-level Levered Cash Flows.

Last, you will derive and fill in line item projection formulas on a pre-formatted individual transaction-level partner-level promote tab.

You will wire the tabs together as applicable. When you have completed all of the hands-on modeling, you will have a fully-working model.

Topics covered include:

- modeling net cash flow for a typical acquisition
- rolling up of multiple investments to the fund level
- projection of fund manager asset management fees
- partitioning of cash flows to the limited and general partner ownership interests based on a typical fund catch-up structure
- modeling of individual transaction partner promote structure
- fund-level claw-back.

Instructor support is provided, and an unlocked solution set is included so that you can check your work along the way.

SINGLE PROPERTY TRANSACTION DEBT FINANCING MODELING



Medium/Hard



4 hour



Hands-On



Slide Show

Applicable Real Estate

Property Types: All income
producing and unit
sales-based

In this 4-hour session, you will learn all about debt financing as it relates to a single property transaction (i.e., not CMBS or RMBS structured finance).

Topics covered include:

- capital structure
- what debt financing is and why it is used
 - concepts of security and collateral
 - basic modeling example of positive leverage to equity returns
 - risks of using leverage
- acquisition loan debt financing simulation in Excel:
 - interest-only payment calculation
 - amortizing loan functions (for both monthly and annual payment frequency):
 - total payment (PMT)
 - loan constant derivation
 - interest portion of payment (IPMT)
 - principal portion of payment (PPMT)
 - cumulative principal paid (CUMPRINC)
 - cumulative interest paid (CUMIPMT)
- amortization table creation:
 - with interest-only period integration
 - with pre-payment event integration
- acquisition loan sizing methods:
 - purchase price vs. total unleveraged uses of funds
 - loan-to-value (LTV) and loan-to-cost (LTC)
 - debt service coverage ratio (DSCR)
 - debt yield
- loan fees
- re-financing loan sizing
- mezzanine financing:
 - modeling subordination of both debt service payment and loan repayment
 - modeling participation in income post-debt service payment
- land loan modeling
- construction financing:
 - differences between acquisition and construction loans
 - loan sizing
 - funded interest (interest reserve) calculation and modeling
 - sources of repayment: income-producing assets vs. unit-sales assets
- interim (bridge) loan modeling
- construction-to-perm loan modeling
- line of credit/self-financing project modeling.

DISTRESSED COMMERCIAL MORTGAGE NOTE ACQUISITION MODELING



Medium/Hard



1.5 hour



Hands-On



Slide Show

Applicable Real Estate

Property Types: All income producing

In this 1.5-hour session, you will learn about this less visible but potentially highly profitable way of investing in real estate, and how to properly model the acquisition of a distressed mortgage note.

Topics covered include:

- what makes a commercial mortgage note distressed in nature
- the various elements that comprise a mortgage note investment, including:
 - collateral value and note face value at original underwriting
 - current remaining loan principal
 - nominal and default interest rates
 - receiver collections
- how to model the acquisition of a mortgage note:
 - all cash or with acquisition debt
 - with and without ongoing debt service
 - with and without cash flows after foreclosure but before final sale
- how to model exit opportunities:
 - sale of note
 - partial pay down
 - sale of the underlying collateral
- investment returns.

Instructor support is provided, and an unlocked solution set is included so that you can check your work along the way.

ADVANCED SINGLE TRANSACTION DEBT AND EQUITY MODELING



Hard



4 hour



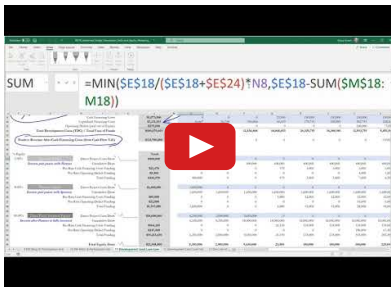
Hands-On

Applicable Real Estate

Property Types: All income producing and all unit sales-based

Applicable Real Estate

Transaction Types: Core and value-add acquisition, ground-up development



In this 4-hour session, you will learn a variety of advanced debt and equity financing and equity partnership distribution techniques for single property transactions, including the modeling of:

- “good news money” i.e., when ownership funds capital costs with debt
- mezzanine debt with payment in kind and cash flow participation
- development land loans and development sponsor land equity
- cash flow waterfalls with IRR and profit share catch-up provisions
- a combined equity multiple/IRR hurdle waterfall.

This session builds upon and is intended to be studied after the completion of REFM’s Level 1, 2, and 3 Bootcamps.

Topics covered include:

1. Stabilized property acquisition with a single I/O senior loan funding fully at closing
2. Partially-vacant property acquisition with a single I/O senior loan funding both at closing and on a delayed draw basis for TIs and LCs as vacancy is absorbed
3. Same as 2 above, with refinancing by an amortizing loan after stabilization
4. Same as 2 above, but with a mezzanine loan with payment in kind and current interest funding as exclusive funding source of the delayed draws
5. Same as 2 above, but with mezzanine loan participating in post-financing property cash flow
6. Integrating an accruing or current-pay land loan into a development Sources & Uses of funds projection with 3 layers of equity and 2 layers of construction debt
7. Same as 6 above, but replacement of senior construction loan with a Line of Credit
8. Integrating sponsor land equity into a development Sources & Uses of funds projection with 3 layers of equity, a land loan, and 2 layers of construction debt
9. Advanced equity joint venture partnership waterfall distribution structures:
 - IRR-based Priority Preferred Return Waterfall (Sponsor IRR Catch-up)
 - IRR-based Priority Preferred Return Waterfall with Sponsor Profit Share % Catch-Up
 - IRR-based Pari Passu Preferred Return Waterfall with Sponsor Profit Share % Catch-Up
 - Equity Multiple vs. IRR Basics
 - Equity Multiple-based Waterfall
 - Equity Multiple- and IRR-based Waterfall.

Instructor support is provided, and an unlocked solution set is included so that you can check your work along the way.

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Chapter 14 | Should You Borrow?
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JOB CANDIDATE EXCEL SKILLS ASSESSMENT TESTING



Assess job candidate modeling skills
without inspecting a single formula

Compare candidate technical skill
levels on a standardized basis

0% COMPLETE 0/1 Steps

SCORE 100% COMPLETION TIME 00:03:50

Correct answer Incorrect answer

	Year 1	Year 2	Year 3	Year 4	Year 5
Assumptions:					
Base Rent Year Over Year Growth	0	3.00%	3.00%	3.00%	3.00%
Vacancy Rate % GPR	0	2.00%	2.00%	2.00%	2.00%
RSF	300,000				
S/PSF	\$15.00				

Kathy Center Cash Flow Statement

	Year 1	Year 2	Year 3	Year 4	Year 5
OPERATING INCOME					
Rental Income:					
Gross Potential Rental Revenue	4,500,000	4,635,000	4,774,050	4,917,272	5,064,790
Vacancy	0	(92,700)	(95,481)	(98,345)	(101,296)
Net Base Rental Revenue	4,500,000	4,542,300	4,678,569	4,818,926	4,963,494

Rankings

1. Karen Carter (100%; 35m 22s)
2. Marina Chernov (95%; 36m 50s)
3. Sara Killian (93%; 40m 10s)
4. Terrance Edwards (88%; 45m 15s)
5. Elif Sennar (80%; 50m 19s)
6. Byron Kramer (80%; 55m 40s)
7. Christian Jameson (74%; 48m 12s)
8. Bruce Jones (70%; 1h 02m 19s)
9. Joseph Harbor (68%; 1h 25m 0s)

* x% By Score, 1-x% By Completion Time

Learn more at GetREFM.com/ssgc/

Chapter 5 Practice Problem In Sp: X

12% COMPLETE 8/66 Steps

Hello, Bruce Kirsch!

Real Estate Finance and Investments Certification

REFAI Free Preview 3 Lessons | 1 Quiz

Module 1: Prerequisites 4 Lessons | 5 Quizzes

Optional Review of Module 1 Quizzes 4 Quizzes

Module 2: Risks and Opportunities 4 Lessons | 5 Quizzes

Optional Review of Module 2 Quizzes 4 Quizzes

Module 3: Fundamentals of Commercial Leases 2 Lessons | 1 Quiz

Optional Review of Module 3

Bruce Kirsch: Welcome to the test for Chapter 5 Figure 5.10 Practice Question in SpreadsheetGrader

Instructions: Click the **Start Test** button when you are ready to begin, and the **Complete Test** button when you are ready to have the test graded.

Context: This is a retail plaza case study.

$=C15 \cdot C4$

	Year 1	Year 2	Year 3	Year 4	Year 5
Assumptions:					
Base Rent Year Over Year Growth	0	2.00%	4.93%	2.25%	0.67%
Vacancy Rate % GPR	0	1.00%	1.50%	2.00%	3.00%
Credit Loss % Gross Income	1.00%	1.00%	1.00%	1.00%	1.00%
Expense Year Over Year Growth	0	4.00%	4.00%	4.00%	4.00%
Management Fee % Reimbursables	10.00%	10.00%	10.00%	10.00%	10.00%

Kathy Center Cash Flow Statement - Figure 5.10

	Year 1	Year 2	Year 3	Year 4	Year 5
OPERATING INCOME					
Rental Income:					
Gross Potential Rental Revenue: Prior Year * (1 + A)	4,500,000	4,590,000	4,816,287	4,924,653	4,957,649
Vacancy: -F * B	0	(45,900)	(72,244)	(98,493)	(148,729)
Net Base Rental Revenue: F + G					
Percentage Rents	93,305	66,209	66,925	64,003	65,425
Total Rental Income: H + I					
Expense Reimbursements:					
CAM Billings	445,368	440,267	420,196	415,895	376,894
Property Tax Billings	390,428	370,123	351,126	346,681	330,128



ABOUT REFM

THE TRAINER OF CHOICE FOR COMMERCIAL REAL ESTATE EDUCATION AND MICROSOFT EXCEL-BASED FINANCIAL MODELING SKILLS

REFM is the premier financial modeling solutions provider for Excel-based financial spreadsheet models, financial modeling training, and financial modeling consulting for real estate transactions of all types.

REFM provides its customers with the advanced financial modeling knowledge, tools and skills they need to successfully model their transactions and present them with confidence internally and to potential partners, lenders and investors. REFM's educational training is offered through digital self-study video tutorials and live group training seminars. REFM also provides private consulting services.

Based in Atlanta, REFM was founded by Bruce Kirsch in 2009. REFM has trained thousands of new and experienced real estate professionals in financial modeling from a wide variety of real estate businesses, organizations and institutions, including private equity, development, brokerage, trade groups and government.



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