Real Estate Financial Modeling

Apartment/Multi-Family Building Development

Module Audio Transcript

Version 1.1

www.realestatefinancialmodeling.com

How this Transcript is Labeled and Organized

This Audio Transcript is organized by Video, then by Financial Model tab, then by Table of Contents marker within that tab. For instance, the sample listing below shows the video number, the tab of the Excel-based spreadsheet, and the content marker (as shown in the gray box in the top-left of the graphic below) within that video that corresponds to the text in that portion of the transcript.

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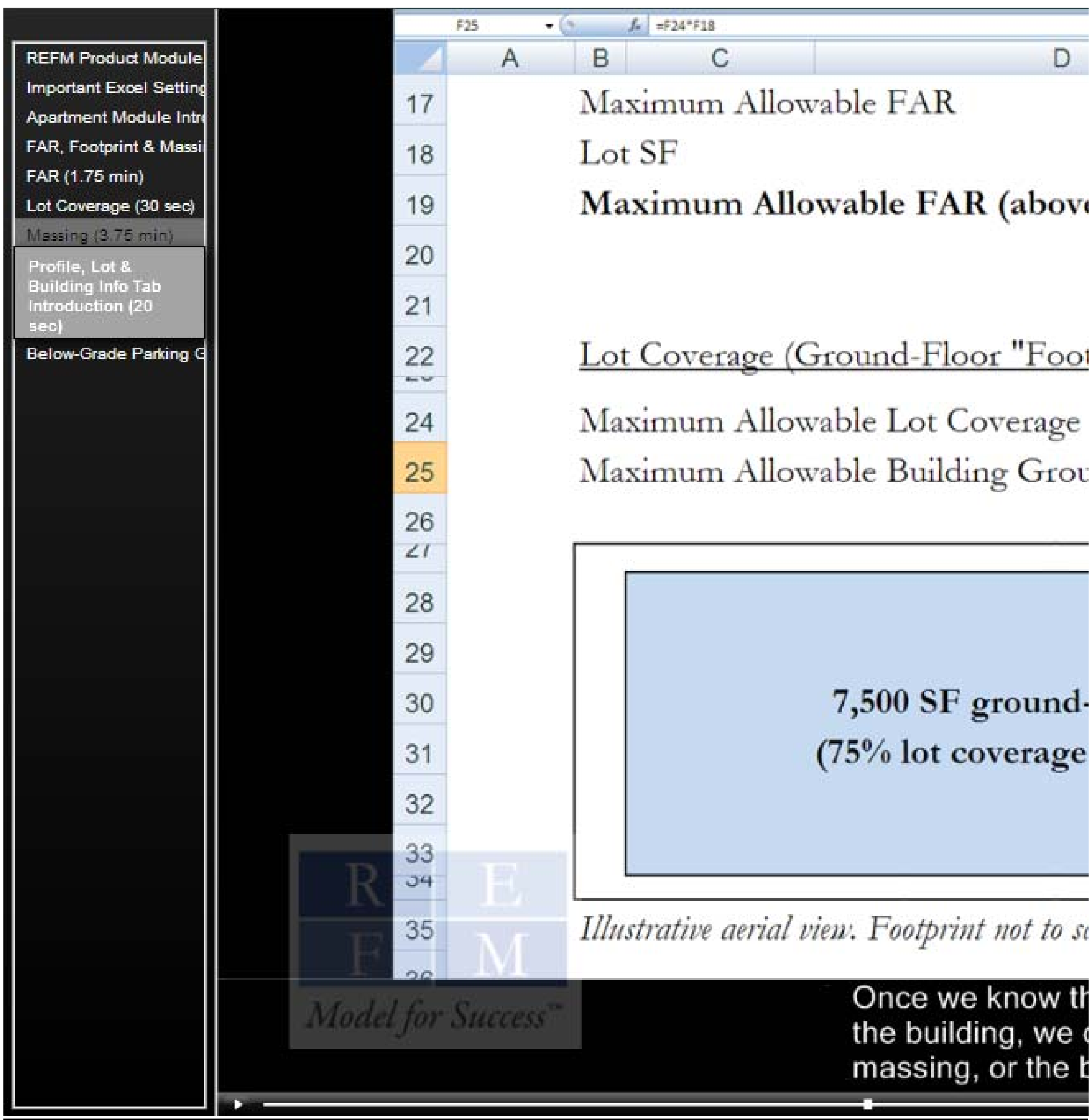

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Video #1

<u>REFM Product Module Orientation</u>

- Hello and thank you for choosing Real Estate Financial Modeling. Real Estate Financial Modeling Product Modules were developed to provide high-quality and in-depth financial modeling resources to students and to the real estate community.

- In each Module, we will explicitly walk through every line of every tab in the spreadsheet such that you intimately understand everything that is in the spreadsheet, and you will thus be able to customize it to your needs.

- As we go through the lesson, we will refer to specific cells by their exact coordinates, such as Cell D2, so for the purpose of the lesson it is critical that you do not add any rows or columns to your spreadsheet, or move any data around. Naturally, once you are ready to customize the model for your own use, you can make any and all changes you wish, but we recommend that you keep an unedited version of the lesson spreadsheet so that you can return to the videos and lesson spreadsheet later and all of the cell references in the video and audio transcript will remain valid.

- The model as you have downloaded it is fully functional and 100% unlocked, meaning there are no restricted access cells in the spreadsheet.

- The model is already populated with assumptions, which are formatted in bold blue type, and calculated values, which are formatted in black or red type. To view the formulas that lie behind the calculated values, simply select the cell and hit the F2 button. This will identify and color-code the constituent cells that are referenced in the calculation of the selected cell. To exit out of this formula display, simply hit the Escape key.

- As we go through each tab, we highly recommend that you just observe the lesson and keep the assumptions as they appear so that our references to specific dollar values remain valid and so that the model does not stop working.

- As with all of our tutorials, you are in full control of the video and you may navigate through or pause the content at any time.

Important Excel Settings

- This model contains calculations that cause what are known as circular references. These are when a formula refers back to its own cell, either directly or indirectly, creating a circular loop.

- An example of this is our calculation of the loan interest in the Sources and Uses of Funds tab because the calculation of the interest depends on the total project cost, which circularly depends on the amount of interest.

- Let's take a look at a very simple example of this to make sure that we understand the concept.

- What we have here is a simple calculation of Total Project Cost that assumes a Hard and Soft Cost amount of $100,000, and an Interest cost amount of 10% times our Total Project Cost, where our Total Project Cost is calculated as the sum of the Hard and Soft Costs and the Interest.

- If we were to calculate the Interest as this 10% times our Total Project Cost amount, hit Enter and then run calculations on the sheet, we are going to get an error message. To circumvent this, what we are going to do is set up or enable Iterations in the spreadsheet, and to do that, we are going to go up to this icon here, click on it, and we are going to get this menu, and we are going to drag down to Excel Options. Click on that, which will bring up this dialog box, and we are going to click on Formulas, and we are just going to make some changes up here in the Calculation Options section, and all we are going to do is we are going to check this box that says "Enable iterative calculation", we are going to leave these default values as you see them here. If your values are not these values, then please change them to these values, and we are going to make sure that the radio button for Manual is selected.

- We select the Manual calculation option so that we are in control of when the spreadsheet runs its calculations. This is going to help us as our spreadsheets become more complex, so that we are not slowed down by the spreadsheet calculating every single item every time we input data into a cell.

- Once we have this we can click the OK button and we can now proceed to the cover page of the Module.

Tab: Apartment Module

<u>Apartment Module Introduction</u>

- Welcome to the Apartment Building Development module from Real Estate Financial Modeling. In this Module, we will learn about how to build, use and customize a financial model to analyze the speculative development and sale of a multi-family rental building. As our working example, we will use an urban high-rise building with a ground-floor retail component and a below-grade, income producing parking garage. While we will focus on this particular product, note that all of the principles taught and applied within apply as well to suburban low- and mid-rise apartment buildings with surface or structured parking.

- Let's get started by flipping to the FAR, Footprint and Massing tab.

Tab: FAR, Footprint and Massing

FAR, Footprint & Massing Introduction

- In all financial modeling for real estate developments, we always need to start first with understanding the basics relating to the lot and the physical building that we intend to construct on that lot.

- To that effect, let's discuss the concepts of Floor Area Ratio, Lot Coverage and Building Massing, in that order.

FAR

- FAR is the acronym for Floor Area Ratio, which as an abbreviation for the concept itself is a little bit confusing, so we have taken the liberty of referring to it as the Floor Area to Lot Area Ratio. The FAR is the ratio of the maximum amount of above-grade building Gross Square Footage that can be built on the site relative to the Square Footage, or area, of the land itself. This ratio is dictated by the zoning in the jurisdiction in which you are developing. The FAR ratio is one of the elements that drives the value of the site because it tells you how much building you can build on the site.

- We calculate our maximum allowable FAR simply by multiplying the lot square footage by the FAR ratio, as is shown in this example of an 8.0 FAR applied to a 10,000 SF lot. We make the point of saying *maximum* because real estate development is most often about extracting the maximum allowable square footage and the maximum value from the land. Generally speaking, value cannot be extracted from allowable FAR that is not built out. We will proceed in this tutorial with the assumption that we will in fact build out our maximum allowable FAR.

- To understand the general massing and footprint of our building, we also need to know the maximum allowable lot coverage, which is also dictated by the zoning. So let's scroll down…

Lot Coverage

- In this example, the maximum allowable lot coverage is 75%, which simply means that no more than 75% of the area of the site may be covered, or consumed, by the ground floor of the building. This lot coverage determines our building's ground-floor "footprint" on the site, which in this case is 7,500 SF, as calculated here, and as shown in the blue shaded area in the illustrative diagram.

Massing

- Once we know the footprint of the building, we can discuss its massing, or the bulk and shape of the building as defined by its exterior planes. Let's scroll down again…

- The massing will be influenced partly by the allowable FAR and allowable footprint, and partly by zoning characteristics relating to height such as a stated maximum height limit or a maximum story count.

- In this example, we assume a maximum stated height limit of 150 feet.

- Next we assume that our average concrete floor slab-to-slab ceiling height is going to be 10.5 feet, which is a market-driven assumption of average height that takes into account market preference for a higher ceiling on the ground floor for the retail space, and a higher ceiling on the top floor for the tenants of that floor.

- Assuming we will build to our height limit of 150 feet, we will have a 15-story building comprised of 14 full footprint floors and a setback 15th floor.

- If we assume that the shape of the building is simply a 3-dimensional rectangle with only the top floor setback, our building would have 14 equal floorplates of 5,600 SF, totaling 78,400 SF, and a significantly smaller 15th floor floorplate of 1,600 SF. Let's zoom out to take a look at this calculation to make sure that we understand it.

- Here in Cell F44 we have the calculation for the building footprint square footage and that of the full floorplate. We calculate it by dividing the 80,000 SF of total allowable FAR by our 14.29 floors.

- The formula for the 15th floor square footage is simply our total square footage minus all the square footage allocated to the 14 full floorplate floors.

- Before we can proceed, we first need to first confirm that our assumed ground-floor footprint of 5,600 SF does not exceed the maximum allowable lot coverage, which it does not, since that was 7,500 SF. This is highlighted in cell H44, where we have a conditional statement that compares the two square footage amounts, and returns a message to us based on the result. In this case, the message is that our footprint can be expanded if we would like to do so. If we exceed our maximum allowable footprint, the REDUCE FOOTPRINT message will appear.

- Naturally, there are many different ways to design the building, and it may not be ideal to have the top floor configured in this way. It might be preferable to have a gradual stepping back of the upper several floors. It will be your job as the developer and your chosen architects to determine how to best fit all of the allowable FAR onto the site. To that point, note that we have confirmed that there is no excess FAR with the calculation here in Cell F48 and with the highlighted message box in Cell H48. This message will change based on the status of the FAR consumption of the intended building design.

- Next let's flip to the Profile, Lot and Building Information tab, which is the first tab of the working model.

Tab: Profile, Lot and Building Info.

Profile, Lot & Building Info Tab Introduction

- Here on the Profile, Lot and Building Information tab we will fully describe the lot and the project. Inputs we make here will drive very impactful calculations in the model, so it is important not to rush through this tab.

Project Profile

- At the top of the tab in Cell B2, we first name the project – we have named ours Center Tower. The name that we enter here will show up on every other tab in the spreadsheet.

- Proceeding down to the box labeled Profile, we enter in basic identifying information about the project such as the street address, county, the land owner, and zoning.

Lot & Above-Grade Building Description

- Next we will move down to the Lot and Above-Grade Building Description box, and we will input the square footage of the lot in Cell D12. In this example, we say that the lot is 25,000 SF, which is a little more than a half an acre.

- We next put in the Maximum Allowable Floor Area to Lot Area Ratio, or FAR. In this example, the maximum FAR is 8.0.

- We see that our total allowable FAR of 200,000 was calculated for us here in Cell D16 by multiplying the lot square footage by the FAR ratio.

- In our example, the maximum allowable lot coverage is 75%, and thus, our maximum allowable footprint is 18,750 SF.

- Given this ground floor footprint, and assuming the building's other floors have the same square footage, the number of floors will be 10.67, or 10 full floors and a partial 11th floor. As noted earlier, assuming an average concrete floor slab-to-slab height of 10 and a half feet, taking into consideration any irregular floor heights, we need to confirm that the building will not exceed the height limit or the story limit, as applicable, as spelled out in the zoning restrictions. We see in Cell D28 that our height of 112 feet is beneath the limit of 130 feet. This is highlighted in Cell F28, which shows the message "Additional height available." If we exceed the maximum allowed height, the FIX BUILDING HEIGHT message will appear.

- Next we will make an assumption as to how much of the ground floor will be consumed by retail space. We know that we need to reserve space on the ground floor for the building lobby, the building core, which includes elevators and emergency stairs, and for emergency exit corridors, loading areas and the parking garage ramps. From speaking with our architect who has designed a similar building in this jurisdiction, we come to conclude that we can capture 65% of the ground floor space as retail square footage.

- The calculation for the retail square footage is shown in Cell D32. Next, we deduct this square footage from our total building square footage to get to the residual Apartment Gross Square Footage.

- We make the point here of labeling this Gross Square Footage, as there is a significant difference between Gross Square Footage and Rentable Apartment Square Footage. By speaking with our architect, based on the layout of the floors and the anticipated configuration and size of the building's core, we estimate that our Efficiency Factor, or ratio of Rentable Square Footage to Gross Square Footage, is 88%. Thus, we are left with Rentable Apartment SF of 165,275 square feet as shown here in Cell D38.

<u>Below-Grade Parking Garage Description</u>

- Next we will describe the below-grade parking garage.

- The first thing to understand when conceptualizing the garage is how much parking we need to have, and when we say need, we are referring to the greater of what the market demands, and what the zoning requires. To understand the market demands, we speak with both residential leasing and investment sales brokers and developers and owners of similar buildings in the submarket. To understand if there is a zoning requirement, we confer with our zoning counsel to make sure we understand the zoning code and its nuances as they relate specifically to our site and the intended square footage amounts of the different uses on the site.

- Here we have assumed that on average, between our retail space and our apartments, we need to have 1.2 parking spots per Apartment Unit. We thus calculate our total number of required spots by multiplying this 1.2 by the total number of apartment units, which yields 221 spots. As you saw in the formula, the number of apartment units is coming from Cell N15 in another tab. We will go to that tab next after we finish the below-grade parking garage description.

- From this number of 221 spots, we will next calculate how much garage area we need, and will then assume a floorplate size and how many levels underground we will need to dig.

- From speaking with architects and parking operators, we have found that each parking spot requires 350 useable square feet, which, if that translates to a space 10 feet wide by 35 feet long, might seem very high to you at first glance. However, by useable square footage, we mean space through which a car can drive, so space with structural columns in it or other blockages does not count. This number thus makes more sense because while the space itself for a full-size car might only be 10 feet by 20 feet, each spot needs to have square footage allocated to it for the ramps and the drive aisles that are needed to enable the cars to drive to the spot.

- Multiplying 221 spots by 350 useable square feet each, we get 77,280 useable square feet needed.

- However, before we proceed, we still need to gross up this number to account for the Gross Square Footage we need to build to accommodate the building core, mechanical systems and other non-useable SF such as where the columns will penetrate the floor. We apply a 15% factor for this, and thus come to the total Garage Gross Square Footage we must build in Cell D52 of 88,872 GSF.

- We must now allocate this total below-grade Gross Square Footage across multiple levels. In Cell D54, we assume that the garage floorplate is slightly smaller than the total lot gross square footage of 25,000 SF. By dividing the total required Gross Square Footage by the garage floorplate size of 23,000 SF, we determine the number of levels down that we must dig to provide all of the necessary parking as 3.86 levels. The partial level simply represents a smaller floorplate than the typical garage floorplate of 23,000 SF.

- We are now done with a basic description of the building both above and below grade. As we noted earlier, the assumptions and calculations we have made on this tab are very important to the outcome of calculations in the rest of the model. Let's flip now to the Apartment Unit and Mix Details tab.

Video #2

Tab: Apartment Unit and Mix Details

Apartment Unit and Mix Details Introduction

- Here on the Apartment Unit and Mix Details tab we describe the building's unit types, the mix of the unit types within the building, and we enter our rent assumptions.

- Let's start at the top in Cell D5, where we show our Total Apartment Rentable Square Footage. As you can see, this amount flows from our Profile, Lot and Building Information tab, where we calculated it.

- Next in Cell D6, we enter the maximum number of apartment units that this building can contain, based on the zoning code of the jurisdiction in which we are developing.

Table Overview

- Moving down to Row 8, we have a table that describes the units in the building in the following ways, as we go from left to right: unit types in the building, rent per square foot for those unit types, average unit size, average rent per month, the % and amount of rentable square footage each unit type will comprise, the total number of units of each unit type, monthly revenues by unit type, and the share of revenues by unit type.

Table Details

- Let's start in Column B, Unit Type. Here we have entered in the 5 different types we expect to offer in the building. For each unit type, we will enter in three assumptions as we move across the table from left to right: the expected monthly rent per square foot, the average unit size in rentable square feet for that unit type, and the share of the total rentable square footage that that unit type will consume.

- All of the other values in the table will be calculated automatically.

Studios

- Let's walk through the first unit type, Studios, in Row 10 so that we are sure we understand how the table works.

- We have entered in an assumed monthly rent of $3.65 per square foot. Before we go any further, though, how did we select this amount? First, we performed exhaustive research on the sub-market by speaking with brokers, by studying market data, and by making in-person visits to apartment communities.

- Then, we took these data points into account and adjusted for qualitative factors such as the relative proximity of our project to the subway vs. that of the others, and the relative nature of our design, aesthetics and ceiling heights, etc. We also note that these rents are today's rents.

- But what if our project won't be delivering for a few years? Shouldn't we take that into account and inflate our rents accordingly? Well, this is up to us as the developer, but we will get much less friction from our potential lenders, partners and investors if we use *today's* rents, so that is what we are going to do in this exercise.

- Next in Cell F10 we have input an assumed average unit size for the studios in the building. We have assumed 600 rentable square feet here, and we have chosen this size based on our market research, making any adjustments we feel are appropriate and defensible based on the particulars of our project. For instance, if our project is going to be the first residential building in the neighborhood to be built on top of a subway station or on top of a grocery store and these are extremely desirable amenities, we might get away with making our Studios slightly smaller than the average studio in the sub-market but still charging the same whole dollar amount for them.

- Our average rent per month for Studios is calculated for us in Column H. Before we go any further, though, we need to make sure that this whole dollar amount of $2,190 is compatible with the market. To do this, we will compare our rent assumption with the market and make sure that we can defend any significant variances.

- Next, in Column J, we will make our first decision regarding the relative proportion of unit types in the building, as measured by the share of the total rentable square footage that each unit type comprises. We assume here that 15% of the rentable square footage will be studios, which when multiplied by our total rentable square footage, yields 24,791 rentable square feet. Based on our average unit size of 600 rentable square feet, this translates to 41 studios.

- Moving across to Cell P10, we see the monthly revenues associated with 100% occupancy of the Studios, and in Cell R10, the share of total revenues brought in by the Studios.

- We input assumptions for the other unit types in Rows 11 through 14, and total Columns J, L, N and P in Row 15. Once again, all of our assumptions will be informed by exhaustive market study and any significant deviations from market norms will have to be defensible.

- In Cell N15, we total the number of units we intend to develop. Remember, we need to stay within the maximum allowable number of units as dictated by the zoning for this site. In Row 16, we have a formula that makes this check and displays a message to us based on our total.

- Starting in Row 17, we show building-wide averages including unit size and monthly and annual rent per square foot.

- Next let's flip to the Capital Structure 1 tab.

Tab: Capital Structure 1

Capital Structure 1 Tab

- When we model a real estate development transaction, we must do so with some assumptions relating to how the investment will be funded. In this section we will walk you through a sophisticated structure. Your transaction's capital structure might be less complex than what we will discuss, but it will benefit you to understand the more complicated structure.

- Let's take a look at the capital structure, also known as the capital stack, of a hypothetical $75 million apartment building development with ground floor retail and underground parking. When we say $75 million, we are referring to the Total Development Cost, which is input in Cell E4. We have chosen $75 million because it could reasonably be the cost of developing a medium size highrise apartment building in 2010.

- What we're doing on this tab and the 3 tabs that follow is graphically representing the sources of the $75 million that funds this Total Development Cost.

- We have listed these sources in the chronological order of their funding from top to bottom. Thus, the equity, which we assume to be 20% of the Sources, is invested, or funded first, then the Mezzanine Loan, which is 15% of the Sources, and lastly, the Senior Loan, which is 65% of the Sources. As shown, the Mezzanine Loan and the Senior Loan represent the financed portion of the project.

- Please note before we go any further that the size of the colored bars in the diagram are not proportionally accurate to their corresponding percentages. Pay attention to the percentages associated with each of the colored bars, not their size.

- What is important to take away from this tab is to understand the nature of the order of funding in a real estate development transaction. As you may imagine, the lending entities will want the development company itself, sometimes referred to as the transaction's "sponsor", to demonstrate their belief in the transaction by investing their own capital, and of more importance, by putting their capital at risk first. When the developer does this, they are signaling to potential co-investors and lenders that they feel this transaction provides an attractive risk/reward profile.

- In this particular transaction, we are assuming that the amount of equity invested is 20% of the Total Development Cost. In your transactions this may be less and it may be more – each transaction is unique. The amount of equity invested will depend on a number of variables, including the availability of attractive financing and availability of attractive equity. When we say attractive, we are referring to both the cost of the capital and terms of the deployment and return of the capital.

- Typically, one could expect to see the developer entity put in a minority portion of the overall equity investment – for instance, where the developer entity put in only 10% of the equity and the developer's co-investor, also known as the Third Party Investor, invests the remaining 90% of the equity. Once again, each transaction is unique. One item to note is that it might be an issue with the lender if the developer entity does not personally have what the lender considers "enough" of their own developer capital at risk. If this issue arises, the developer might have to increase their contribution to the total equity amount. We'll talk more about equity in a few minutes.

- Let's talk for a moment about the two layers of Financing – i.e., the Senior and Mezzanine Loans. The Senior Loan is, by definition, subordinate to no other loans on the project. In other words, it has the most senior claim on the real estate and all fixtures thereon in the event of a default by the developer, and also in terms of the order in which the Loan's Interest and Principal are repaid. Specifically, the Senior loan will be funded last out of all sources of funds, and its interest and principal will be repaid first.

- This priority is addressed in this top yellow Comment box that talks about the Order of Funding and Refunding of Capital. Hit pause now to read what is conveyed in the comment. We will go into this in more detail in the actual model.

- The Mezzanine Loan, as shown in the diagram, sits in the middle of the Equity and the Senior Loan. Because the Senior loan funds last and the Equity funds first, the Mezzanine loan will by default fund second. Since the Mezzanine loan is not repaid until after the Senior loan interest and principal are repaid in full, the interest rate charged by the Mezzanine lender will naturally be higher than that charged by the Senior lender, because the Mezzanine lender's capital is more at risk than that of the Senior lender.

- Note that as mentioned in the top Comment box, the Mezzanine Loan Interest and Principal will be repaid prior to any return of Equity Capital. Since Equity capital is invested first and repaid last, it is the highest risk, and thus requires an even higher return than the Mezzanine loan.

- As noted in the bottom yellow Comment box, it is critical to understand that a project's sources and uses must be identical because the sources of funds are raised to literally match the uses of funds.

Tab: Capital Structure 2

Capital Structure 2 Tab

- Looking back at the green Equity box on this tab, which shows that 20% of the TDC is funded by Equity, click on the next tab, Capital Structure 2, and notice how the Equity is now sliced into two separate pieces.

- What we are showing here is a more realistic equity split within the capital structure. As noted in the yellow Comment box, a typical equity investment for a development project where equity comprises 20% of the TDC might look as follows:

    - The Developer entity invests 10% of the total equity, or $1.5MM out of the $15MM, which equates to 10% of 20% of the TDC, or 2% of the $75MM,

    - and where the Third Party Investor invests the balance, or 90% of the total equity, which is $13.5MM out of the $15MM, which equates to 90% of 20% of the TDC, or 18% of this $75MM.

- However, often the Developer equity itself is comprised of two separate investing entities – the Development Company, which we will refer to as the Developer Sponsor, and a Developer Partner.

- Click onto the Capital Structure 3 tab to see how these portions of the Total Developer equity relate to one another.

Tab: Capital Structure 3

<u>Capital Structure 3 Tab</u>

- When we click from the Capital Structure 2 tab to the Capital Structure 3 tab, we notice that the Developer equity itself is now cut into two slices.

- As we see here, and as noted in the yellow Comment box, the Developer Sponsor is investing only 20% of the total Developer Equity, or 20% * 2% of the TDC, which equates to 0.40% of the TDC, whereas the Developer Partner puts in the remaining 80% of the Developer Equity, or 80% * 2% of the TDC, which is 1.6% of the TDC.

- Hit pause to give yourself enough time to look at these values and to read through the Comment box.

- To understand this entire capital structure better, let's flip to the next tab, Capital Structure 4.

Tab: Capital Structure 4

<u>Capital Structure 4 Tab</u>

- Welcome to the Capital Structure 4 tab. This is admittedly a lot to take in at once, but it is critical that we understand everything here before we proceed into the rest of the model. This tab serves as a great visual aid for communicating the capital structure of the proposed transaction to potential investors and lenders.

- Looking at column B, just like on the Capital Structure 3 tab, we have all of our different capital sources represented.

- As a reminder, please note that the size of the colored bars in the diagram are not proportionally accurate to their corresponding percentages. Once again, please pay attention to the percentages associated with each of the bars, not their size.

- Next let's look at Column F, the % of TDC, but let's start at the bottom instead of at the top.

- When looking at any transaction, we will probably determine how much equity must be invested by doing so on a residual basis. In other words, we will first make an assumption as to how much of the Total Development Cost could be funded by debt based on conversations with mortgage brokers, lenders and other developers currently in the market for financing for similar projects.

- As a result of these debt assumption inputs, the residual amount to be funded by equity is 20%, which is shown in Column H in Cell H7.

- To determine how that equity is split up, we will make our assumption inputs in Column D in Cells D7, 8 and 9. You will note that we have done so using the same proportions as shown and discussed on the Capital Structure 3 tab.

- The share of the TDC that each slice of equity represents is calculated automatically and appears in Column F in Cells F7, 8 and 9, and we notice that as we look down column F, it totals to 100%, comprised of that 20% equity and the previously calculated total of 80% debt.

- We can confirm that our Developer Sponsor and Developer Partner equity split is accurate by looking across to the calculated values in Column R.

- As noted by the asterisk in the headings of Columns L, N and P, these columns fill in automatically only once the model is populated for a total uses of funds in Cell I49 of the Sources and Uses of Funds tab.

- Take a step back now and look at this tab in its entirety to understand what we have just discussed.

- When you are ready, flip to the Conditional Statements Introduction tab.

Tab: Conditional Statements Introduction

Conditional Statements Introduction Overview

- Here on the Conditional Statements Introduction tab we introduce the technique of using conditional statements to allocate values over time. This technique will allow us to model our transactions more easily, especially as assumptions change, which they inevitably do. Once again, this discussion assumes our hypothetical apartment building development with underground parking and a ground-floor retail component.

Control Panel

- The first element that we will talk about is the creation of a timeline "Control Panel".

- What we are doing here is numerically labeling the events or milestones in our financial model with respect to the project's timeline, or *time coding* them. Because our pro-forma is going to be constructed on a monthly basis, our Project Start Date, or what some call the Analysis Start Date, will be designated Month #1 as shown in Cell E8. Thus, we have input the number 1, and because this is an assumption, we have formatted it in bold blue type.

Timeline Compression Discussion

- Before we go any further, please note that for the purpose of this lesson, we have significantly compressed the timeline of the transaction so that we can keep our screens magnified to a reasonable size and do a minimum of scrolling during the lesson. While our transaction in The Basics module spanned 60 months, our transaction here lasts only 12 months. Nonetheless, the principles taught here are applicable to transactions of any length.

Pre-Construction Period

- As described in The Basics lesson, the period of the development transaction that pre-dates the construction period is known as Pre-Construction. We will quantify the duration of the Pre-Construction period at 3 months as shown in cell C9. Thus we are assuming that the land is controlled, the project is designed, all construction drawings are produced, and a building permit is secured all within periods 1-3 of this illustrative timeline.

Construction Start Month and Duration

- Thus, the first major milestone that we will calculate is the Construction Start month. This is shown in Cell E10, and is simply the sum of Cells E8 and C9.

- The next element to code is the duration of the construction period, which is also known as the construction schedule. We have assumed that this is 4 months, and have input the number 4 in Cell C11.

First C of O

- The next milestone in Cell E12 is the receipt of the first apartment unit's Certificate of Occupancy, or C of O, declaring that unit legal for occupancy by tenants, and the commencement of rent from this first unit. We make a distinction here in labeling this the first Certificate of Occupancy because typically in apartment projects, each apartment unit will receive its own C of O. As the developer, you naturally want to monetize each unit as soon as you can, so you will take advantage of receiving the first C of O by leasing and occupying that unit. Note that this formula includes a minus 2 at the end. This accounts for our starting construction in the beginning of the Construction start month and our assumption that in our compressed timeline we receive our first C of O 1 month before the end of construction. In a more realistic timeline, this timing might be up to several months before the end of construction, naturally depending on the size of the project.

Construction End Month/Final C of O

- The next milestone in Cell E13 is the Construction End month, which is also when the building will receive its final C of O. Note that this formula includes a minus 1 at the end. This accounts for our starting construction in the beginning of the Construction start month.

Post-Construction Leasing Duration

- The final phase of development transactions is the Post-Construction phase. The most important timing element here is the rate at which the lease-up will occur.

- As shown in Cell C14 we have assumed a Post-Construction Leasing Duration of 3 months, which means that our last unit will be leased by the end of Month #10, as calculated in Cell E14.

- Next in Row 15 we show the total number of Units to Lease, as calculated on the Apartment Unit and Mix Details tab.

- In Cell C16, we calculate the total number of months of leasing that it takes to lease up the building, which is the sum of the number of months of leasing between the first C of O and the end of construction, and the number of Post-Construction leasing months.

- In columns G through J, we have a check formula running to make sure that we have leased all of the units.

- In Cell C17, we divide our total units by the number of months of leasing to get to the units leased per month. As you may imagine, 37 units per month is not a very conservative estimate. This high rate is a result of the compressed illustrative timeline we have used for the sake of the lesson. Depending on the market, the actual rate could be more like 10 to 15 units per month.

- As you may have noticed, the value of units leased per month is referenced in the check formula here.

Retail Tenant TI Payment

- Next in Cell E18 we have our assumption for the month in which we will pay out our retail tenant's tenant improvement payment. For the sake of simplicity, we have assumed that we make a lump-sum payment in month 12, which we see in Cell E19 is the same month in which we sell the retail along with the apartments and parking.

Retail Tenant Rent Commencement

- Lastly, in Cell E20 we show the month in which the retail tenant's rent will commence. What we have done here by hard keying in the month 15 is assume that we will have a retail tenant signed, but that their rent would not start until after we sell the asset.

- Press pause now to step through each line in the control panel, hitting F2 to view and understand the formulas before we move on.

<u>Time Coding Overview</u>

- Now let's talk about rows 21 through 25. What we've done here is set up the timeline for the project, and described, or coded each period, which in our case is a monthly period, in multiple ways.

<u>Calendar Month</u>

- The first row, Row 21, is simply the calendar month. To keep the entire model timeline compressed within one calendar year for the sake of the exercise, we have chosen January 2010 as the month that corresponds to Month #1, our Project Start Date. We enter this as 1/1/2010. We do the same for February by inputting 2/1/2010. And to get the rest of the values to fill in without inputting them by hand, what we do is hover the mouse over the bottom right corner of these two selected cells, and then we are simply going to drag across to the end of the range, and our values will fill in automatically.

<u>Counting Numbers</u>

- In the next row, Row 22, we have simply labeled the project timeline in the counting numbers that correspond to those in Control Panel. The formula here is very straightforward: the first month is hard coded in as month #1, and the second month and all subsequent months are the previous month plus 1.

<u>Construction Month #</u>

- In Row 23, we introduce the concept of "Construction Month #". This simply starts counting at month 1 of <u>construction</u>, and stops counting at the last month of construction. This is helpful to employ because your construction schedule will have certain milestones within it, such as the topping out of the structure, which you will want to refer to in the context of what month of *construction* it is rather than what month # it is in the project.

- The formula here is a conditional statement that refers back to the milestones in the Control Panel. The formula says the following:

  - If the Current Month is greater than the month in which construction ends, return a dash, signifying construction has completed.
  - If the Current Month is greater than or equal to the # of months of Pre-Construction + 1,
    - And If the Current Month is = the number of months of Pre-Construction, then return a 1
      - Otherwise, return Last Month's Construction Month # +1
  - Otherwise, return a 0, signifying construction has not yet commenced.

- This may seem a little bit confusing but we see how the formula works here, as construction month #1 starts in April, which is month #4, as designated and calculated in our control panel. Construction lasts 4 months, as designated in our control panel, and after the month in which construction ends, month 7, which is July 2010, the Construction Month # shows dashes, which mean that construction has ended.

<u>Construction Status</u>

- In Row 24, we introduce the concept of "Construction Status", whereby we designate status 1 as being Pre-Construction, status 2 as during Construction, and status 3 as Post-Construction. Once again, we code our timeline in this additional way because many of our costs will be driven off of the current phase of construction as we move through the model. The formula used here refers to the designations we made in the control panel. It says the following:

  - If the Current month # is less than the month # in which construction starts, code this month a 1;
  - If the Current month # is greater than the month # in which construction ends, code this month a 3,
  - Otherwise, code this month a 2.

Cell Reference Locking

- You will note in this formula that I have introduced the cell reference locking function, which is activated and signified by dollar signs in front of either or both of the row or column coordinates.

- Let's take a second to make sure we understand the power of this function in Excel.

- Note that when you reference a cell in a formula without doing anything special, that cell reference is a *relative* coordinates reference, that is, the formula points to that cell based on where that cell is located on spreadsheet relative to the cell in which the formula itself resides.

- You can see this by simply looking at cells F22 and G22. When we copied over the formula from F22 and pasted it into G22, the new reference in G22 is F22, not E22 as it was previously.

- For Row 23, we want the formula to always reference the same two cells in the Control Panel, so what we want to do is "lock down" the reference in the formula so that it is not a relative reference but rather an absolute reference. We can do this by either typing dollar signs in between the Row and Column coordinates, or by placing our cursor in between the Column and Row coordinates and hitting the F4 button until the formula shows dollar signs in front of both the Column and Row coordinates. We then do this in all of the other places where we want to retain this absolute reference, and then copy the formula across the timeline.

Calendar Year

- The last row, Row 25, is simply a coding of each month with respect to which elapsed year it belongs so that when we want to summarize data by year, we can do so easily by writing a formula to check that row to see to which year each month (or each column) belongs. The formula introduces the ROUNDUP function and says the following:

    - Round up the quotient of the current month divided by 12, to the tens place. For example, for month 1, 1 divided 12 = 0.083, which rounded to the tens place, is 1.0. You will notice that the formula returns a 1 for all of the first 12 months, and a 2 for the year starting in month 13.

<u>Development Fee Example</u>

- Now that we have all of this under our belts, let's take a look at an example of applying a conditional statement to allocating one of our soft costs, the Development Fee, over the life of this hypothetical project.

- Assuming we are paid our development fee only during construction, and that we are paid the fee evenly during the construction period, we can set up a formula to check to see if the current month is coded Construction Status 2, as being a Construction month, and then have the formula consequently return the right value.

- This is shown here in Row 29, whose formula says the following:

  - If the Current Month is Construction Status 2, take the total Development fee and divide it by the number of periods of construction;
  - Otherwise, return the value 0.

- Note that we employ the cell locking feature here when referring to Cells C11 and C29, and also note that the Development Fee is spread over evenly only the months of construction, as shown here in construction month 1, 2, 3 and 4.

- When you're ready to move on, click on the Sources and Uses of Funds tab.