



# ARE EXAM PREP: THE TOP 10 TIPS FOR PASSING THE ARE®

FROM BLACK SPECTACLES AND MIKE NEWMAN



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*Taking the Architect Registration  
Exam (ARE®) can be an  
overwhelming experience.  
But it doesn't have to be.*

*Black Spectacles enlisted the help of licensed architect and AIA ARE Prep Powered by Black Spectacles instructor, Mike Newman to compile a series of tips to help you navigate, and pass, the ARE.*

*Use these tips to help you figure out how to get started, some of the best study resources, and some of the key concepts you need to know before going into the exam.*



#### TIP 1

## DON'T PANIC

*Seriously, don't panic.*

In reality, it doesn't matter if you fail one of the exams. You just have to take it again. Yes, it costs money and takes time. But it really doesn't matter.

There are a million questions you could be asked on the exam. There's no way you could possibly know all the answers. You could get an exam filled with questions you don't know the answers to and still pass. Don't overthink it. Overthinking is what will get you into trouble. As soon as you start overthinking the exam questions, it becomes a cycle.

You can take the exam as many times as you need in order to pass. If you happen to pass them all in the first shot, have an extra beer (or two). Don't fret about it if something doesn't go quite the way you thought it would. If you fail, that doesn't mean you won't ever pass, instead use it as a learning experience and move on.

Learn to relax and not worry about it. If you pass, awesome. If you don't, take it again. The exam can feel like a big weight on your shoulders if you let it. So don't.

## TIP 2

# BE STRATEGIC

*The best way to learn how to take the exam, is to just take the exam.*

## BE STRATEGIC ABOUT THE ARE 5.0 TRANSITION

If you are already halfway through ARE 4.0, finish it! ARE 4.0 won't be retired completely until June 30, 2018, so you've got plenty of time to complete it.

Figure out which version fits in your timeline. If you aren't planning on starting the exam until 2017, maybe do version 5.0 so you don't have to worry about finishing it within a year or deal with transitioning to a new one.

One of the biggest changes in this transition is the 7 exams within ARE 4.0 are realigning to become 6 exams in ARE 5.0. If you want to be as efficient as possible, you could do the [5-Exam Plan](#)<sup>™</sup>, which is a little of both versions, and finish the entire ARE in just 5 divisions. The 5-Exam Plan consists of these 3 exams from ARE 4.0: Construction Documents & Services, Programming, Planning, & Practice, and Site Planning & Design, and Project Planning & Design and Project Development & Documentation within ARE 5.0.

## BE STRATEGIC WITH THE ARE 5.0 RESOURCES

The new version of the exam will no longer have graphic vignettes. Instead, they will be replaced with new question types - hot spots, drag-and-place, and case studies - to ask graphic specific questions. [NCARB has video demonstrations](#) available to show you examples of these new question types.

## BE STRATEGIC WITH HOW YOU TAKE THE EXAM

Let's say you studied for 3 days, then took all the exams. What if you passed 3 or 4? Wouldn't that be awesome? Then you could focus your studies on the ones you didn't pass. And it's a huge advantage to know what to expect on the test while you are studying. It can be difficult to walk into something knowing you might fail, but at the end of the day, you spent a few days and a few hundred bucks and knocked out half of the exam!

Just give it a try, or better yet, take the [7in7 Challenge](#) – all 7 ARE 4.0 exams in 7 consecutive days. It sounds scary, but we've seen some really inspiring young architects who have taken the challenge and [actually passed them all](#)! And even if you don't, the odds are you will at least pass a few, and you will be able to study more efficiently afterwards.

Some people continuously put off taking the exam for some reason or another. But guess what? There's never going to be a good time to take it. Just do it. If you fail, who cares? No one has to know, and you only have to wait 60 days to retake it. You'll learn a huge amount from the process.

## BE STRATEGIC AT THE TEST CENTER

Utilize your time at the testing center wisely. Treat it as a social event. Talk to other test takers. Set up study groups.

## BE STRATEGIC ABOUT UTILIZING THE NCARB SYSTEM

Know where you are in the process at all times and how the rolling clock works.

Be strategic. Figure out a timeline that makes sense for you, and make it happen.

## ARE 4.0 IS 7 DIVISIONS:

- *Building Design and Construction Systems*
- *Building Systems*
- *Construction Documents and Services*
- *Programming Planning and Practice*
- *Schematic Design*
- *Structural Systems*
- *Site Planning and Design*

## ARE 5.0 IS 6 DIVISIONS:

- *Practice Management*
- *Project Management*
- *Programming and Analysis*
- *Project Planning and Design*
- *Project Development and Documentation*
- *Construction and Evaluation*



### TIP 3

## FIND YOUR RESOURCES

*Try everything until you find something that works.*

There are lots of study resources out there. There's books, flashcards, online courses. They're all great, and they're all different. Some are more generalized. Some are more specific. Different people will like different materials. It's important to try everything and find the resources that work best for you. Here's some of our favorites.

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01:

### *Phone a friend*

If you're taking the ARE, you must know other architects. Talk to them. Everyone has their own path to licensure story. Ask to hear theirs. Ask for their study strategies, their study schedule, their testing schedule, and any advice they may have.

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02:

### *The NCARB Online Community*

An online community from NCARB, it's a place where you can ask questions, share tips, and talk with people who are in the same boat as you. Talk to the people at NCARB, ask advice from licensed architects, swap study tips and techniques. They have separate forums for both [ARE 4.0](#) and [ARE 5.0](#).

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01:

## *Black Spectacles*

Architects are visual people. The [AIA ARE Prep, powered by Black Spectacles](#) is a complete and comprehensive series of online video exam prep courses. Get access to over 60 hours of videos and tutorials to help you prepare for each division of the exam. And you can watch the videos anytime, anywhere, on any device with an internet connection.

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02:

## *The locals at AIA*

Utilize your local AIA Component. They often have ARE Prep classes. They have Black Spectacles memberships. They have the Young Architects Forum. Connecting with your local AIA Chapter is a great way to connect with your local community of young architects who are also taking the exam (see #1). Helping you is a huge part of their mission. They really want to help. So let them.

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03:

## *Water cooler talk*

If you're working at an architecture firm, talk to your colleagues. It's not uncommon for your firm to pay for you to take the ARE because it's advantageous to the firm to have more licensed architects on staff. It encourages you to get licensed. Not all firms do this, but it's definitely worth asking. Also, they may have access to study resources. Ask around and see what's there.

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02:

## *Read a book*

Here's a few great books worth checking out:

- o Mechanical and Electrical Equipment for Buildings
- o Architectural Graphic Standards, 11th Edition
- o Sun, Wind, and Light: Architectural Design Strategies
- o Building Construction Illustrated by Francis D.K. Ching
- o The Architect's Handbook of Professional Practice

# UNDERSTAND THE AIA CONTRACT DOCUMENTS

*Know what you're looking for.*

The AIA Contract Documents are made up of about 200 forms and contracts which define the relationships and terms involved in design and construction projects. You don't have to understand every aspect of the contracts, but there are a few elements you should know. The bad news is that you're going to have to actually read through these. Reading contracts is boring. Really boring. But as long as you know what you are looking for, it will make it easier.

## UNDERSTAND THE BASICS

One thing you should know is who has contracts. The two main contracts are the owner/architect contract which is the B101 or B107 and the owner/contractor contract, which is the A101 or the A107.

There is no contract between the architect and the contractor, and yet, they work together quite often. Instead, there is the A201 General Conditions which sets forth the responsibilities of the owner, contractor, and architect during construction. The A201 is not signed. It's referenced into the other contracts.

If you actually had a contract with everything from who's paying for the electricity, to how do the change orders work, it would be incredibly long and difficult to understand. Instead, they compile all of this standard information, and put it off to the side in the A201 general conditions. It's then referenced in other contracts by stating something like "Please include the A201 in this contract." So you focus the contracts on the important things that need to be understood for negotiations, but all the information stating everyone's roles is still there in the general conditions.



## COMMUNICATION FOLLOWS THE CONTRACTS

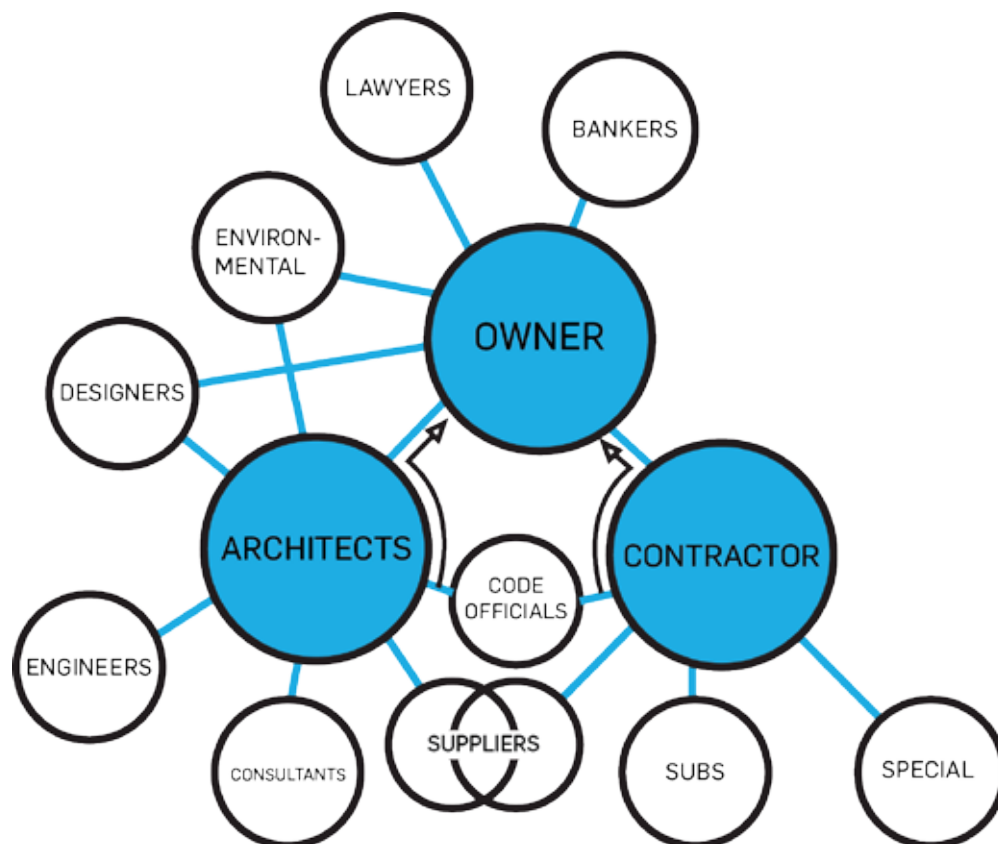
If you have a subcontractor who has a contract with the contractor, can you talk to the subcontractor? Technically, the answer is no. Keep in mind that we're not talking about how things work in the real world. We're talking about how they work according to the ARE. According to the exam, you cannot talk directly to the subcontractor. Instead, you must go through the general contractor.

Technically, you should speak to the owner, who then talks to the general contractor, who then goes to the subcontractor. But because the A201 says that there is a relationship between the two of you, you can actually go straight to the general contractor because you're acting as an agent for the owner.

## UNDERSTANDING CONTRACTS TERMINOLOGY

Architects do "Design Intent," Contractors do "Means and Methods." "Design Intent" is the project objectives and requirements. "Means and Methods" means the contractor's job is to actually make the design happen. Those are two very different contracts. They use different words, have different meanings, and they have dramatic impact on who does what at the site.

The "Standard of Care" is another term to look for. It states that you owe a duty to perform reasonably well on the project. The standard of care for an architect is "Reasonable and Prudent (Competent)," whereas the standard of care for the contractor is "Conformance." Those are also very different. By contract you can only promise competency. You cannot promise beauty. Know the difference between these terms.





## TIP 5

# YOU ALREADY KNOW STRUCTURES

*We promise, you already know structures. You just have to translate what you know into the special language of engineers.*

### CONCEPTS ARE MORE IMPORTANT THAN FORMULAS

Formulas make concepts tangible. Often, if you understand the formula, you understand the concept, and you understand how the two fit together, then you don't need to do any math. It's not about doing math. There will be more questions on the ARE about general ideas than there will be about math. Every once in a while you'll have to do some equations, just so they can see that you know how to plug in the numbers. You aren't expected to memorize formulas (although it's useful to memorize a few). All of that information will be given to you, and you just have to be able to find the right information and plug it in the right spot.

### LEARN TO SPEAK ENGINEER

The world is complex. Engineers look for ways to simplify complex situations. Don't get fooled by that. You actually do understand what's going on, even if they say it in an odd way.

You don't need to be fluent in their language, just conversational.

### KNOW THESE ENGINEER TERMS

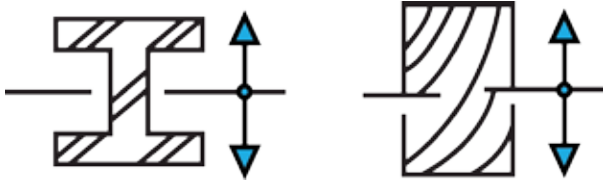
Modulus of Elasticity – E

Moment of Inertia – I

Section Modulus – S

The E is about material. It is a term about the stress strain diagram that describes how robust a material is. Wood has a good modulus, it's actually pretty strong. But steel is way stronger and has a significantly higher E.

The I and S are about shape. If you think about a beam or joist you want to span across 20 feet. Do you want it to be tall and thin or flat and wide? Tall and thin. Because shape matters. If you have a beam spanning across, you want to get the meat of the material as far apart from the central axis as possible. That's what's going to be the most useful.



How do you know that? If you have a higher I, you have more material farther away from the central axis. It doesn't mean that it's strong material. If you have wood, which has a high I, it doesn't mean it's going to be strong because the wood itself is strong. You need the shape to be strong, as well.

The E is about material. The I and the S are about shape.

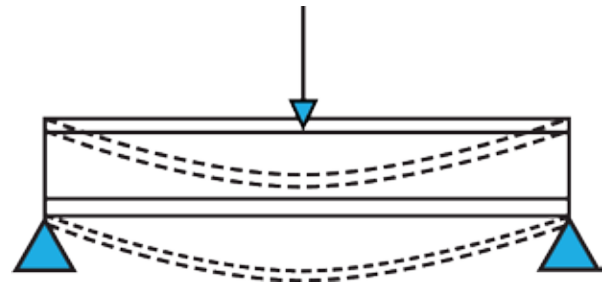
## ONE CRAZY LOOKING FORMULA

One crazy looking formula.

$$\Delta = 5wL^4 / 384EI$$

This equation is about deflection. Triangle is Delta, or change. What is this formula supposed to mean? You already know what it means.

If you take that joist and put a weight on it (the weight is w - the dead weight + the live load), it's going to deflect down. It's going to bend down. It's going to start having a curved shape. But you already knew that.



But, how much is it going to go down? What would the change be? That's what this formula is trying to figure out. That's the Delta. The formula might look crazy, but you can quickly figure it out if you just stop and think about it.

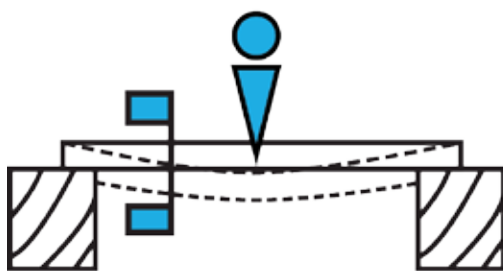
The 5 and the 384 are just constants. You don't need to worry about those. The w is the weight. The L is the length of the beam. The E and the I are the modulus of elasticity and the moment of inertia. You know all the parts of the formula.



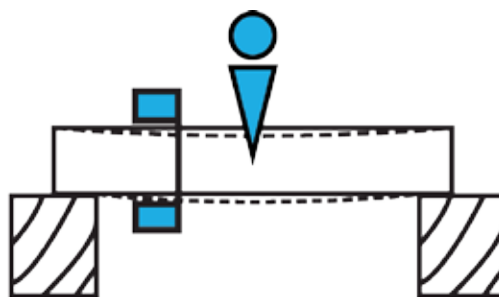
## STEEL VERSUS WOOD

Now you need to decide what material the joist will be made of. Everything else is the same. You have a set situation and a certain length. You have an idea of this design concept, and now the question is: do you put a wood beam there, or a steel beam?

Consider what will happen to  $E$  if you use steel. It's going to go way up. Steel is more robust than wood. What would that mean in terms of the formula? That means the denominator will get much bigger, therefore the overall fraction will be a smaller number. So by using steel, you will have less deflection than if you used wood. When the  $E$  goes up and the overall number goes down, you have less deflection. What happens if you use wood? That lower denominator goes up, and there's more deflection.



V S .



## WHAT ABOUT SHAPE?

Let's say you chose wood. The next question is: do you use it vertically or do you use it flat like a board? This is about shape. Remember, you want to get the meat of the material farther away from the central axis. With the board, the material isn't far away from the central axis. You're not getting any benefit from it. You're going to have a bigger number for  $I$  in the situation with the joist standing tall than the one where it's lying flat. That larger number is going to make the deflection less. If you did it as a board, you'd make the deflection more.

You already know structures. Just look for the information and translate it back into your terminology.

## TIP 6

# ON THE EXAM, NO ONE CARES IF YOU'RE A BRILLIANT DESIGNER

*It's about simplicity and competence. And health, safety, and welfare.*

The only person that's going to look at your exam is a computer. And the computer doesn't care.

## IT'S ABOUT COMPETENCE. AND HEALTH, SAFETY, AND WELFARE

Beauty does not appear on the exam. If the word "beauty" or "hierarchy" comes to mind while you're taking the exam, then stop. You're not going to pass that exam if you're thinking that way.

## VIGNETTES OR NO VIGNETTES?

If you're taking ARE 4.0, you will need to be comfortable with vignettes. (If you're taking ARE 5.0, then congrats! You don't have to do vignettes!) The key to vignettes is to think of them as puzzles and then move through them. They have architectural content, but they are not architecture. You will be given a bunch of information and you have to find a way to translate that information into something useful. It's as important to practice how you're going to translate and move through the information as it is to practice using the program. Do one thing at a time, keep it simple, and make a plan.

## HOW TO MOVE THROUGH VIGNETTES:

- *If you're taking ARE 5.0, skip to the next page. You're done with vignettes!*
- *Understand what is going on*
- *Analyze and evaluate the problem*
- *Take useful notes, have a system*
- *Graphically diagram it out*
- *Roughly place all the components*
- *Finalize rooms, place all doors*
- *Review code (dead end corridors, etc.)*
- *CHECK*



## ARE 5.0: NO-VIGNETTES

Say “so long!” to vignettes on ARE 5.0. The new version of the exam is adopting [3 new question types](#) that will be used to ask graphic-specific questions.

**Hot Spots.** This question type will present you with an image and corresponding question. To answer each question, click the correct location on the screen.

**Drag-and-Place.** You are given a question, background drawing, and design elements. Drag the design elements and place them in the correct location on the drawing.

**Case Studies.** Another new question type, these are a way to assess your ability to synthesize multiple pieces of information, similar to how architects solve problems on a daily basis. You are presented with a project / scenario and corresponding documents (drawings, codes, etc.). Answer questions and make judgments based on the resources provided.

These new question types are kind of like drawing, but you’re not really drawing anything. The exam isn’t assessing your drawing skills. The exam doesn’t care if you’re a good designer. There is some wiggle room with each of these new question types, so if you don’t place these pieces in the exact right spot, don’t worry about it. The exam is just testing your basic understanding of these moving parts, not your design skills.



# PLANESAWING VS. QUARTERSAWING

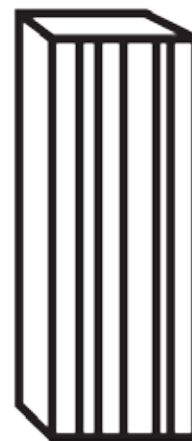
*Make sure the difference between the two is ingrained into your mind.*

Planesawing is about economy. Let's say you have this big log of wood. You cut a bunch of lines straight across it. That is planesawing.

But if you were quartersawing, you would take that log and saw it into quarters first, and then cut each quarter across.

As you can see from this example, planesawing is more efficient when it comes to getting as much wood out of it as possible. However, with quartersawing, you have nice, straight grain lines. If you look at it in section, you still have nice straight lines. That means it's going to expand and contract in all kinds of incredibly predictable ways. It's going to be very useful and very strong. It's going to wear well. Planesawing, although more efficient, is going to be much harder to understand exactly how it's going to expand and contract. The grains are going to look like little cathedrals.

Make sure you understand the difference between the two prior to the exam.



QUARTERSAWING



PLANESAWING

TIP 8

## KNOW HOW COOLING WORKS

*Heating is easy. Cooling is hard.*

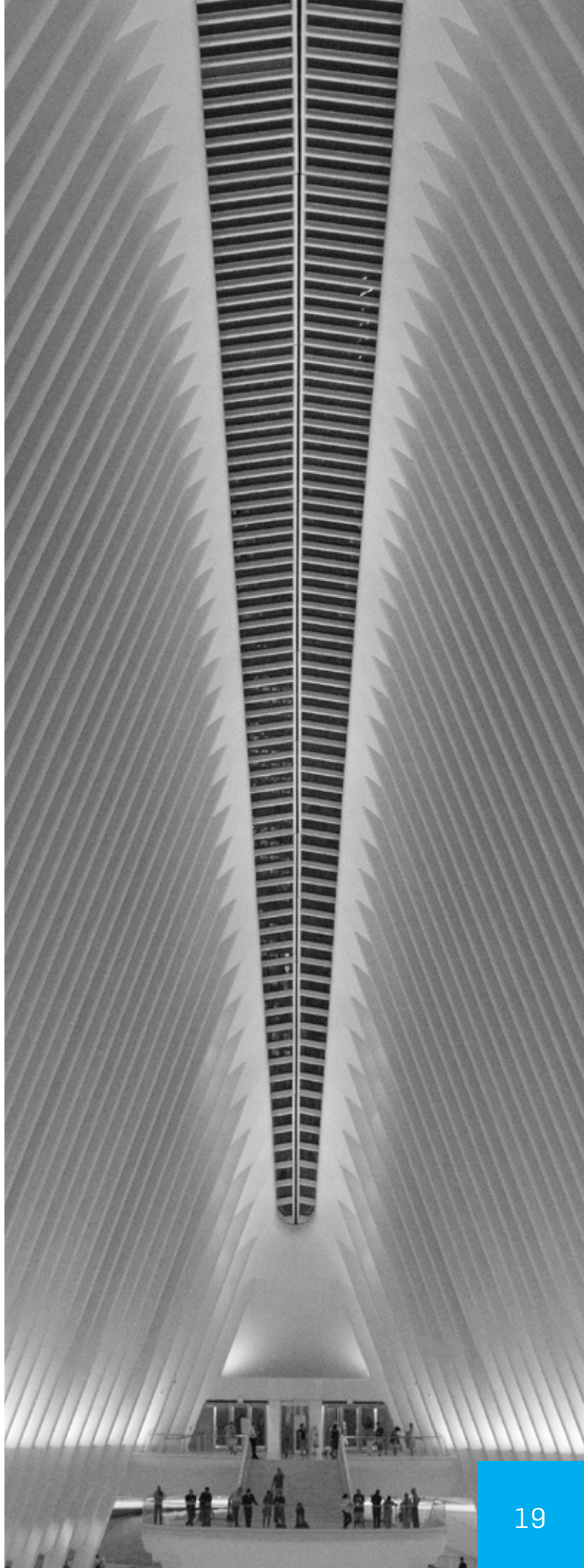
To heat something, you simply light a fire and it gets hot. Cooling is much more difficult. In order to cool something, you have to move heat around. But how do you do that?

### LET'S LOOK AT AN EXAMPLE

Start with a loop of refrigerant. If you pressurize any particular material, you can know what the temperature will be of that material.

If you compress that refrigerant material, it makes it very high pressure. The heat in the room moves to the cooler refrigerant, as you continue around clockwise, it compresses the refrigerant to make it hot. It then evacuates the heat to the outside. As you continue around to the box at the bottom, this is where you let it expand out and the refrigerant becomes cold. As you continue up the other side, a fan blows the air across the cool refrigerant lines bringing colder air inside the room.

It's the same material, just going through this on-going loop where you pressurize it, and let it expand out. By doing that, it changes temperatures on the two sides.

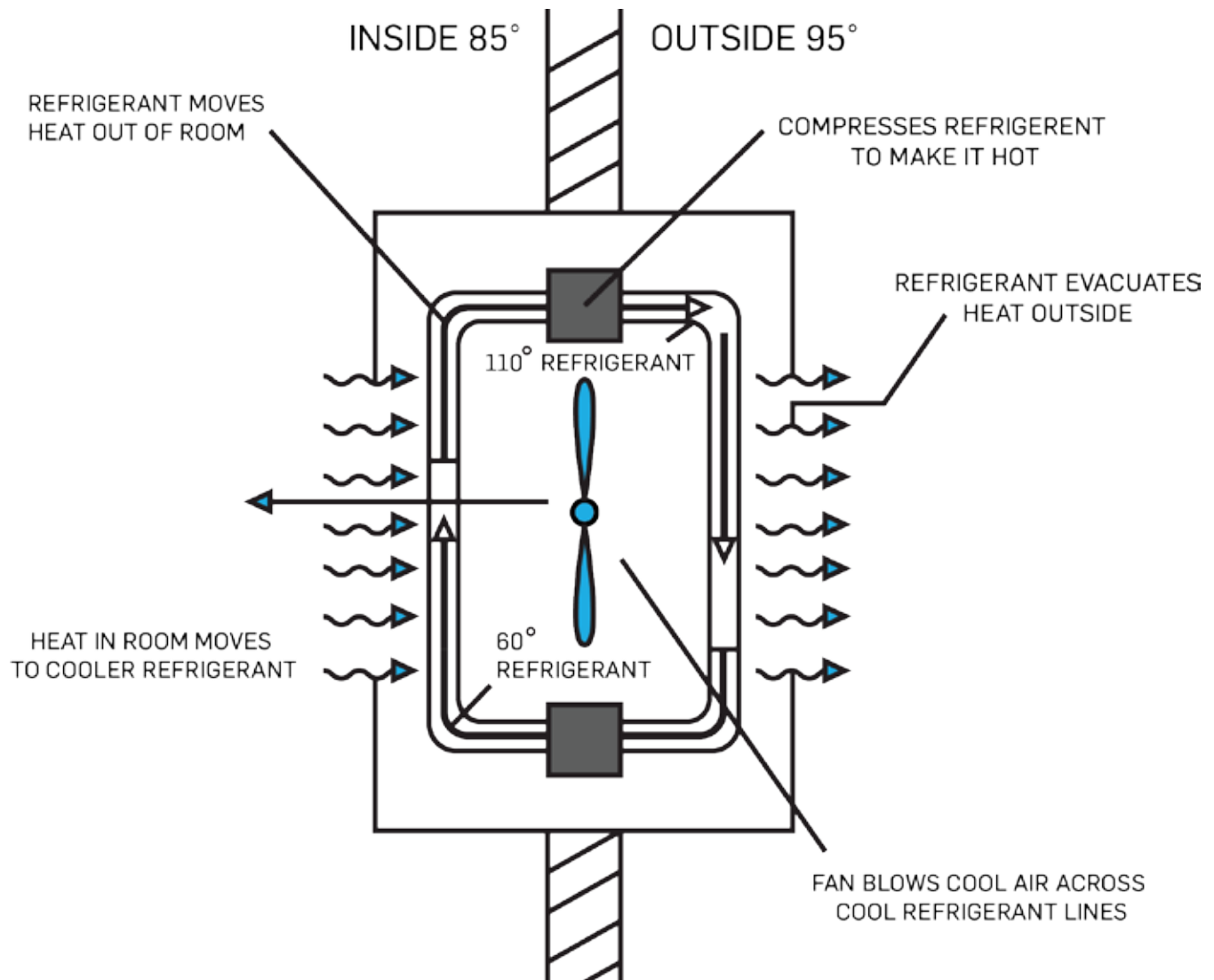




## WHY IS THIS USEFUL?

If the cool side is inside the room and the hot side is outside, the cool side is going to accept warmth from the room. Then it's going to move it to the outside. But before it gets outside, you are changing the pressure and increasing the temperature of it. It's now hotter than the air temperature outside. It's going to give off the heat to the outside.

This is how you accept heat from the inside and going to give it off to the outside. That's how your window air conditioner works. That's how every air conditioner works.



# 300 FT<sup>2</sup> TO 350 FT<sup>2</sup> PER PARKING SPACE

*The only 2 dimensions you need to know when planning parking lots.*

You always need to allot 300ft<sup>2</sup> to 350ft<sup>2</sup> per parking space. That accounts for the space itself and about half of the drive aisle.

## HOW MUCH SPACE DO YOU NEED TO PARK 100 CARS?

Easy. Just multiple 100 cars by 300ft<sup>2</sup> per space.

## BUT HOW BIG IS THAT PARKING LOT?

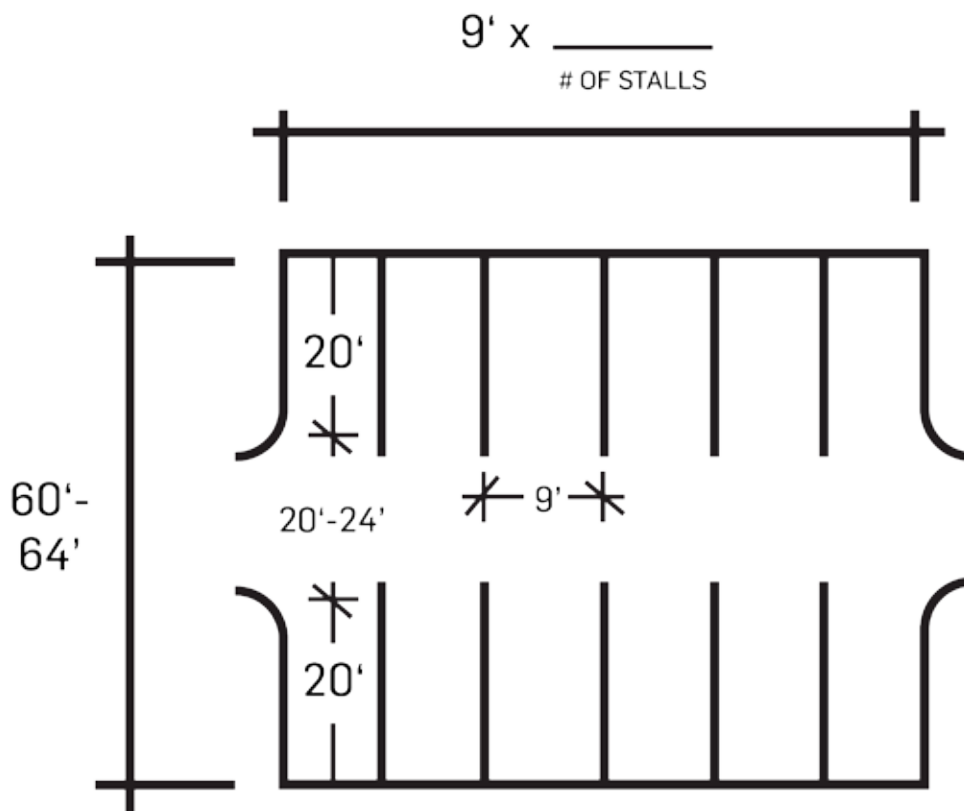
You always know that a parking lot is going to be somewhere between 60' and 64' wide. That's enough room for two parking spaces and a drive

aisle in between. Every parking lot on the exam will have one dimension between 60' and 65'.

## THEN WHAT'S THE OTHER DIMENSION?

It's going to be half the number of parking spaces times 9'. This is because 9' is the typical width of a parking space. Parking spaces are typically 9' x 18' (but architects often round it to 10'x20').

So in seconds you can take a question that sounds fairly complicated, and you can figure out exactly how big that parking lot needs to be.



TIP 10

# UNDERSTAND THE CONCEPTS BEHIND PROGRAMMING

*Who? What? When?*

## WHO DOES THE PROGRAM?

You're the architect, so you make the program. Do you write the program? Technically, no. The contracts say that's what the owners bring to the deal. They have to know what they want.

## WHAT DO THEY WANT?

How do you have the ability to start designing for them? They give you the program. But often, clients don't have enough information. They're not savvy enough to know how to do that. So they hire the architect to do the program as an additional service which is added to the contract. Remember, if it's not written in, you don't get paid for it.

## WHEN DO YOU DO THE PROGRAM?

Before you start designing. The key thing to understand about an architectural program is that you're not designing while you're doing the program. The point of doing a program is that you're looking at the data. You're building the case that you will then use to design.

If you start designing right away, you're compromising the information. You begin looking for data that supports your design whether you mean to or not. It's exactly what you're not supposed to do. A program is supposed to be devoid of the design process.



*There is no big secret to passing the ARE. Everyone has their own approach, study materials preference, and way of scheduling the exams. There's no right or wrong way to prepare, just dive in and do it. But if you're feeling overwhelmed, and don't know where to start, just remember these 10 tips and you will be well on your way to passing the ARE, and becoming a licensed architect.*



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