DRAW LIKE A REAL ARCHITECT

ADVANCED DRAWING AND DESIGN

Step-By-Step Guide
To Architectural
Drawing And Design Mastery

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About The Author

Michael Neatu has been teaching traditional drawing media for the last ten years and has helped hundreds of architects, designersand future architectslearn and master traditional architectural drawing and visual communication.

His teaching approach combines traditional both schools of though in architecture: technical drawing(logical, left-brained, problem-solving) and freehand drawing(artistic, right-brained, conceptual).

But Michael took things one step further... after teaching to dozens of students, it was obvious that the problem was deeper than just going through techniques and practicing elements such as how to problem solve a descriptive geometry volumes intersection or how to draw an artistic architectural composition.

Most of the problems the students were facing come from their own inner perception of things, the way their own brains are individually wired, so the course expanded into areas of study such as human creativity, neuro-linguisticprogramming and the Myers-Briggs type personality system.

Without further ado, here is a short introduction from the author.

“Hi, Michael N here...

So you are probably asking yourself who am and why should you listen to me?

Well, I am just a normal guy, but the thing is several years ago I have made a decision to absolutely master architecture drawing and design.

Back then I was still in architecture school… and thingsgot really bad...

I was so behind in my abilities that I could hardly finish any designs on time so was behind on all deadlines.

I walked around feeling trapped, like all my inner creative juices, stopped flowing and I could not express any of the many creative ideas that were floating around in my brain.

If that was not enough, at one point I really lost self-esteem in myself and my dreams around architecture - ‘ if I wasn’t able to draw a building, then how in the world will I be able to design it?!’

So one day I made a commitment to myself: either really master architectural drawing and express my full creative potential or just quit on my dreamsand become a duck farmer in my hometown.

I hustled and did my absolute best to reinvent myself and to constantly upgrade all my skills... and it worked!

All my designs were consistently in the top 5% of all the submissions, I developed an unique drawing style and got a bit of notoriety because of my drawing skills (like a was some sort of local celebrity in all my social circles).

The crazy part was that one day I was sketching a quick design for my studio at the time.

And I was completely wrecked - had 3 hours of sleep, just lost all my drawing tools and had to resort to drawing everything in highlighters and pen (the type of pen you used in fifth class mathematics)

Also, because of ‘unforeseen circumstances’ I started the design 2 hours late, so had to really push it.

I managed to finish the design on time (which looking back was quite complicate: it had facades, plans, a couple of interior and exterior perspectives).

At the last 20% of finishing the drawing I noticed that people started circling around me and just looking at my drawing board which had all drawings on it.

I literally had five people just looking at me hatching a perspective with a blank look on their faces.

Ok, keep in mind, I was focused on getting the work done - so the first thing that crossed my mind was that 'cheeky b*stards, they just want to steal my ideas'

But later it clicked! They weren't trying to rip on my designs, but they were looking in shock because they haven't seen something like that before.

Then I really understood what was going on: they had absolutely no idea how to draw like I was.They weren't pretending they can't draw in order to make my let my guard down or trying to steal my ideas, they literally were shocked about what hey were seeing.

Imagine the look on my face, like I couldn't even picture that somebody could become an architect but have no clue how to draw... But just after a couple of quick glances around me and yeah I could see that all the other designs looked like complete mediocre rubbish.

Well, long story short, I handed in my design - while it didn't get the best results for the overall concept, it did look miles better than anything around it.

So after that day I decide to make it my mission to cure everybody that wanted to learn of this terribledisease called architectural visual illiteracy (tohave absolutely zero clue how to draw like an architect)

Couple of years down the road, I've taught A LOT of students how to get good at this - I've watched dozens, and dozens of students come in with that glossy look in their eyes and after just a couple of lessons produce stuff that they didn't think was possible.

But here's the really weird part – about thirty or so students in, I have noticed that things which clicked really easily for some students, were a complete nightmare for others.

I mean, beyond the fact that you naturally either like some parts of the drawing process more than the others...

It got really crazy and I really put the time to develop a way to get to the real problem behind the problem.

Although it was really taboo at the time, I struggled to get answers to real pressing questions such as:

How do you develop genuine architectural creativity which is always there for you?

What isyournatural strong point in arch drawing and how can youdevelop it?

Keep in mind, I originally got notoriety for my drawing techniques... so we mixed both areas into a concoction that gave out crazy results and got all my students deep, inner change.

Like I could look in their eyes and tell that something was different about them after finishing each the lessons.

And with each generation of students, the teaching techniques got better and better, and the results just became insane to say the least.

So I got a simple question for you:

Do you want to create the beast architectural drawing work that you ever did in your professional career?

Then follow and apply the advice in this book!

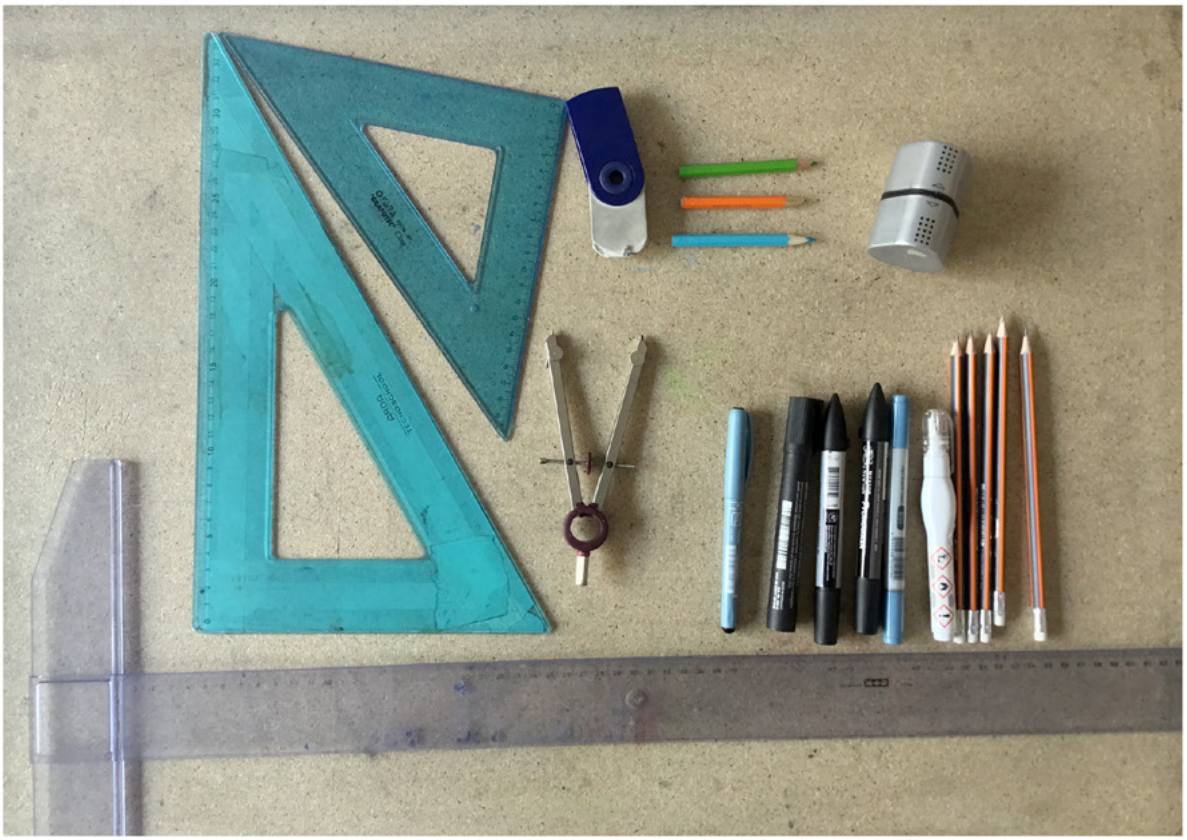
You will find out I am deeply passionate about getting you the best result in the world with architecture drawing.

That is my personal promise to you!

Look, I am not perfect, would argue that nobody is. But I still think that this book and all my programs are the best in the world, and they will upgrade everything you previously thought on architecture and drawing.

Boom, let's get started and get you some insane results with architecture and drawing!"

Introduction To Arch Drawing



Intro:
This is the shopping list for architecture drawing - it covers everything you need to buy to study arch drawing and design (these tools will be of use to you for many years ahead!)

Assignment:
Buy these all these drawing tools:
– triangles – both 60/30 degree and 45 degree
– T bar
– drawing board
– 2B pencils
– erasers (I cover two types used for different elements)
– colored crayons
– liner
– compass
– corrector pen
– simple markers
– colored crayons

Key Points:
- Get every item on this list, no exceptions - they will all be of extreme use to you as you progress in drawing.
Do not deviate! It is the natural human tendency to go for shortcuts an try to go for the 'quick fixes'.

ADVANCED DRAWING AND DESIGN

Introduction

This book has been written on park benches and in public places from 11 PM to 1 AM and in numerous bars and cafes

It has also been writtenwhilst teaching 8 to 15 hour drawing classes to my students - while they were finishing off the lessons on constructed perspective I was already brainstorming on how the two types of imagination work ...

The bottom line is that the spirit of 'being quick on your feet and getting things done' permeates this book and it should come across in the way you studyand apply the knowledge in it.

Do not linger on one particular concept or chapter too much, but build for yourself as a machine of drawing mastery that will get that will get the 'wow effect from' everyone around you that knows anything about architecture.

And after you are done building all that, destroy it completely and rebuild the 1.02 version which will be far better.

Go through this book three times in a row and you will get arch drawing and design mastery.

Listen, I am not a fan of books. In my honest opinion now in our wonderful XXI-st century there are many much better methods of transferring learning into your brain.

I am not concerned about being a succesful author, or about filling in a 300-page tome full of nothing with fluff information and the diluted message that comes with that or copying other people's books.

What I am concerned about is you understanding the information in this book and taking action on it and thus changing your life for the better.... for the much better... for the exponentially better!

From experience, video lessons are the best as they allow you to see the exact steps and go over the sticking points many times in a row until you get past them.

I cannot wait for the day that technology for transferring thoughts directly in your mind will appear, then that will be closer to what I want you to get from all of this.

Pure, efficient, life-changing learnings.

Looking at things in this context, books cannotreally accomplish this goal so clearly, but they are a decent enough stepping stone to offer you a way of getting started

The classical way of learning is learning directly from a mentor, be it in person, one-on-one.

The student-mentor relationship cannot so easily be supplicated by any media out there... so I assume you proactively take this into consideration when going through the book.

You cannot ask me the questions directly, but you can re-read the passage five times until you understand the idea!

My last thought on this is that there is an 'unwritten rule' that if you want to create something of quality, it needs to be valuable ten times its original monetary investment.

But I took things one step further, so this book is worth much more than ten times its monetary value...

Not to boast but I would go as far as to say that it is the most important thing you will ever find to better yourself and your career in architecture.

I like things that work, and I absolutely love things that have animpact, not just 'add numbers' to the x books on the topic you've come across, but the things that you read 30 words of and then your brain gets fried and you need to go to sleep...

Then you come back and read another 30 words and your brain get fried again and so on...

Sounds good?

Cool, adventure time! Go go go!

The Big WHY - What Goes Behind The Book, How Did It Come To Be

All the information in this book comes from hands-on experience in drawing: my own journey in architecture and arch drawing and teaching and the journeys of all my students.

I have been teaching a lot of students from different backgrounds how to get good at drawing and designing and how to push past their hardwired limitations and transform themselves into the talented architects or designers they always wanted to be.

I have to be 100% honest with you (you will see that honesty is my general approach when dealing with important things)

There is no way of measuring how all of this works, why it works and the impact it will have now and in the future for you and your work.

Nobody can tell if you will read through the whole book in the next 3 days, apply everything in the next two weeks and go through the book again and boom, all your designs will suddenly get exponentially better.

But what you need to know is that there is no clear metric for what improves in your brain when you learn proper arch drawing. It is not like you can put a ruler next to your head and measure the progress.

Will you become a BETTER architect if you master arch drawing? Yes, most definitely.

Will you get better IDEAS? Yes, and you will use drawing as a means of clearly and artistically expressing them.

Will learning architectural drawing press the reset button on everything you thought about architecture? Yes, the inner creative juices will flow again!

What about creative discipline or solvingproblem? Yes, that will improve as well, especially after you finish all the descriptive geometry assignments – those will get you being smarter.

Invest The Time Now, And You Are Then Set For Life

The best motivation you can get is that look... you will spend this time now for getting the skills, and you will benefit from them for the rest of your career.

For the rest of your career you will not have to worry about learning much else in arch drawing but only apply the advice and techniques presented in this book over and over again.

You have no excuses as an architect if you cannot draw, that is why you need to make it happen for yourself.

Look, your best bet into doing all of this is just to go and learn drawing right now and get this part of your design career set for life... then you will have the road set for getting all others skills in architecture sorted.

Yes, if you get the graphics and drawing out of the way then you will have an accelerated learning curve for all other skill sets in drawing.

If you do not do that, then all your effort will be counterproductive, and you will waste precious time and energy on dealing with the extra friction in your skill set and with having to learn drawing a bit, then quit for a while and have to relearn everything and then go and learn drawing a bit more, then because of not practicing enough revert to your old self and so on

There are people that struggle with this in silence all their career.

This Book And How To Use It

As you have read in the previous part, this book is not about you having a casual read on your mobile device, or about me adding pages with filler text…

You need to first learn the theory of arch drawing and design and then go make it happen in real life, draw all the assignments in their specific order.

You can read each theory concept (preferably in order) and then go through the specific assignments three times: once as a complete beginner, then you can go through it again, and you are average, then you go through the exercises again as an advanced student of drawing and design.

I know I know, all of that sounds like hard work and I have to be honest with you... at certain times it will be very hard mental work.

But trust me, it is all going to be worth it - six months from now you will be looking back, and you will have drawing skills 'seemingly out of nowhere.'

Do not get overly emotional or romantic about learning drawing though... at the end of the day, it is about getting you the real-life results… so no results = no learning.

In that unfortunate case that you go through the book and you do not get the results that you were hoping of, then I urge you to immediately send me an email at michael@freehandarchitecture.com to get a full refund with no questions asked.

I also highly recommend you get a nice stack of A4 paper to do all the exercises, take notes for all of the theory parts and do some on-the-spot sketching for the drawing lessons.

On Architectural Drawing-The Essential Skill For Your Design Workflow

Architectural drawing cannot be faked – it is a honest expression of your inner creativity as it basically tells everything about you: how much of architecture do you understand, how developed is your inne world and how sensitive you are to the subtleties of architecture.

You caneither draw or you cannot and there is nothing in the world that could get you around that.

You cannot hide your perspective mistakes by photoshop or trace over a computer render to make it look like an original sketch..

Learningreal architectural drawing is what will separate you from the mass of mediocre architects and designers out there. Having exceptional arch drawing skills will come out through all your work - either directly (you sketching ideas in front of clients)or indirectly in the form of helping you with your creative process.

When you know how to draw all your renders will look better as they will have an added layer of subtleties to them.

Ignore all the naysayers - people who say you do not need drawing or they used to draw in the past and 'they outgrew it'.

These are the same people that scored D's in a row on their design work and are bitter because they know they are missing something essential in their view of the world.

If they are so good as they pretend to be then why do they take the time to criticise your work by saying x, y and z ... instead of focusing on getting their own work to the next level.

And lastly, do not lie to yourself that computer software is the answer to everything because it is no.

You probably previously done everything by the book and your design ended up looking boring and stale.

The History And Evolution Of Architectural Drawing

We will now talk about the history of how architectural drawing.

Architectural drawing is the art and science of visually expressing architecture, architectural concepts and accurately representing space.

For the most part in history architects have been using drawing and model making to make their ideas take shape

and bring them to something that could have final form in the real world.

Constructed architecture perspective has been discovered in the Renaissance time (around the XVIth century) and after that architects could also represent space accurately and thus a new world of subtleties opened itself to the design world.

With the coming of computers in the design arena (late 1980's, early 1990's), arch drawing has taken a massive blow as now it had a direct competitor in the form of computers with design software.

So for the first time in history, architects did not have to literally draw to make their ideas take shape, they could use the software to do that.

Previously to finish architecture school, do all the required internships and become and architect it took you around 10000 hours out of each at least 1000 hours of drawing.

Now that has completely disappeared and its place has been taken by computer software.

Ever heard of the job of a perspectivist? A perspectivist was an architect who solely focused on drawing the final hand renders of how a building will end up looking.

That disappeared altogether and was replaced by archviz. If you are not familiar with what it means, it stands for architectural visualisation and it is the area of creating photorealistic renders that look as accurate as possible to what the final design will be in real life. So no more perspectivists, done and over.

Vector drawing software started to be used for designing technical drawings so you do not need to ink your drawings anymore. I personally think this is great, as I always found inking drawing as tedious and the end result was not worth the effort.

But nonetheless, that was an expression of how an architect would draw technical drawings and custom details.

Lastly, BIM (building information modelling) came about, where you can create a virtual model of a building and the software automatically generates floor plans, facades, sections and so on.

So architects really have a lot of excuses to not draw anymore.

Architects Do Not Have To Draw Anymore

Let that sink in for a moment; architects do not have to draw anymore...Hmm, something that worked for thousands of years changed like that, almost overnight.

Could there possibly be any side effects to something as massive as that?

There are two types of problems that resulted from software taking over traditional drawing media.

1.)The visually illiterate architect. If this is you then you are not capable of articulating your ideas by drawing them and thus have a inconsistent understanding of the creative process from the concept stage to the final set images.

Being visually illiterate cuts you off from a large part of your creative potential and leaves many gaps in your inner mental creative processes.

At the end of the day, not knowing how to draw as an architect is not necessarily about not being able to produce hand rendered images, but rather about lacking the inner subtle qualities which are the direct result of those abilities.

This internal void bleeds out into more parts of the creative process and brings down all areas of your skill set, in most cases without you having any idea that is happening.

2.)The creatively biased architect

You are biased either to being too conceptual, unrealistic and impractical or you are are too technical, analytical and rigid in your approach to architecture.

Makes sense? You probably had subconsciously noticed this at yourself or people you know… that they tend to run

away from one of the two parts of drawing and focus far too much on the other.

You ideally do not have a favourite between the two and both types of thinking and their abilities are each running at a 100%.

The one that is your natural preference automatically runs at 110% but that is it, no need to go further than that.

So Is Architectural Drawing Finally Done And Over?

No, not even close.

If anything, drawing is making a comeback, as architects all around the world have started noticing the limitations of software.

All software is very good for getting the job done, but it is killing the magic of architecture.

You see, it is not just about handing in something for deadlines… you need to create something that is much deeper than that.

The pen-mind connection cannot be replaced with anything computers help you produce.

Creating implies something that has that artistic touch, and without architectural drawing there can be no artistic anything.

Sure, you can be crafty by means of model making, you can be skilled in creating interesting volumes like that, but overall it is not enough.

All of these things are like playing darts and you hit all the larger circles but consistently miss on the centre mark. And you probably know that that one direct hit in the middle mark is worth more than all the shots that missed.

Architectural Drawing 2.0 And How It Will Help You Develop As An Architect

The new type of architectural drawing fits in the context of the current culture and workflow environment.

You no longer need to do all those construction details by triangle and T-bar, you can use vector-based software for that.

You can use polygon modelling to create site models and all sorts of virtual models that you can later render to create photorealistic final images of your designs.

Architectural drawing 2.0 merges seamlessly with that as the type of drawing you will learn from this book will put all those things together and help you facilitate and blend all your different skills together.

It will also help you understand architecture at a much deeper level, will get those creative juices flowing again and it will help you create stunning hand rendered graphics for your final presentations.

You will develop inner core skills that directly translate into your work with design softwareand it will help you develop your own unique vision and drawing style.

Lastly, we need to talk about how architectural drawing will merge with the whole plethora of things you already have to do in your life.

Learning and practising drawing is not about spending 10 hours locked up in a room studying like a machine, but about incorporating drawing in your own life and assignment afterassignment,drawing after drawing getting better at it.

You realistically got 1-2 hours of available study time per day, so you will use that for growing your abilities.

Perfect practice makes perfect - two hours/day of solid effort every dayis what will get you drawing the way you always wanted and knowing things ways you did not even imagine were possible.

The first three months will be uncomfortable as you will struggle, but after three months you will get fluent and comfortable with most of the architectural drawing out there.

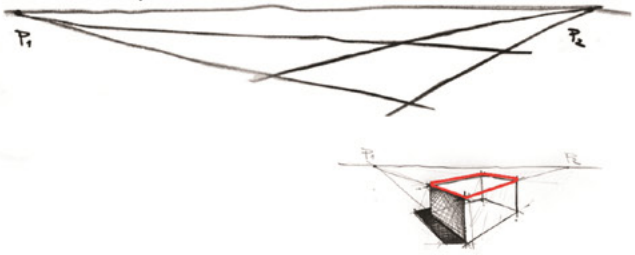
And you will start really enjoying it – each day you will not spend drawing you will feel like an itch to get back to the drawing board and unleash your creative potential!

Box Perspectives

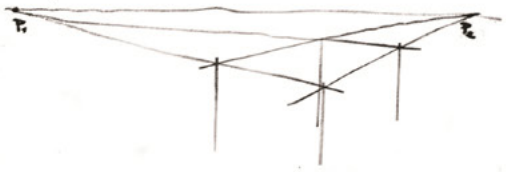
01. Draw the horizon line and the perspective ponts 1 and 2.

02. Intermediary stage to draw the top face.

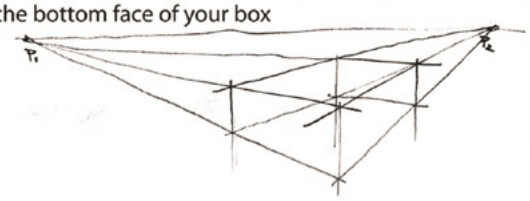
03. Finish the top face of the box.



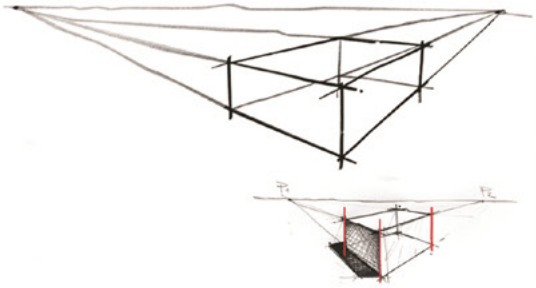
04. Draw box heights



05. Draw the bottom face of your box



06. Harden Construction Lines



These above six steps are the fundamentals for drawing any two-point perspective.

Assignment: Draw on separate A4 papers bottom-up, top-down and building view perspectives until you get the proportion, size and line weight at a sufficiently advanced level.

After that you will select your top drawing for each category and hatch it with a background, shadowed faces and cast shadows.

Note: You will go through several attempts where you will make mistakes, ignore that and focus on not repeating the same mistake and getting the next drawing better.

ADVANCED DRAWING AND DESIGN

Lesson #1 Freehand Drawing 1.0 - Fundamental Box Perspectives

Lesson Objectives:

- The three types of perspective.
- The principles of hatching and shading.
- Finishing a complete A4 perspective in line drawing and hatching

Focus On:

- Draw large, clear and confident drawings - these box perspectives are the foundation for all other freehand exercises to come
- Draw everything 100% by freehand (without a ruler). No matter how crooked the lines, you draw them by freehand until they look acceptable - this will build up your hand drawing prowess for later

Possible Mistakes:

- You will draw small perspectives. This is a very common beginner s problem - to counter it remember that you need to extend the horizon line out of your page and have one point on the horizon line extension
- You will mess up at least one of the three perspective views. This again is a beginner s mistake - remember that this exercise is not just about drawing, you need to develop your spatial vision as well

Introduction

To understand Freehand Drawing, you need a thorough understanding of perspective: how to draw different objects correctly in perspective, how the perspective points work and how to construct each volume just by guesstimating the perspective.

To make things easy to understand and then apply - we got a horizon line, which is set by default at the standard human line of sight.

If the standard person has 1.80 meters in all our drawings (and unlike snails,we humans do not have eyes on the top of our head), then the standard horizon line should be lower than the human height.... so that puts it at 1.65 meters.

Relating to the horizon line, all objects can fit into three categories:

They are below the horizon line - that makes them fit into a 'top down view' like you are literally looking down at them.

Some examples of objects like this? The computer or laptop you are seeing this lesson from... more than likely it is sitting on a desk somewhere so if you are standing up it is below your horizon line.

Other top down objects - the desk or table you are sitting on- tables usually are 70 cms tall or 120 if you are watching this at a bar somewhere...

So a table or bar surface fit in a top down box perspective as it is much lower than the standard horizon line.

2.) They are above the horizon line, so if objects are above the horizon line this means you can see the bottom face of each object and that perspective is a Bottom-Up Perspective

If you are inside a building... look up at the ceiling. Would you agree that the ceiling is a really flat box which floats above your head, so is in a bottom-upperspective."

Other than that maybe there is a ceiling lamp nearby... however,curvilinear the lamp, it as well fits into a bottom-up perspective.

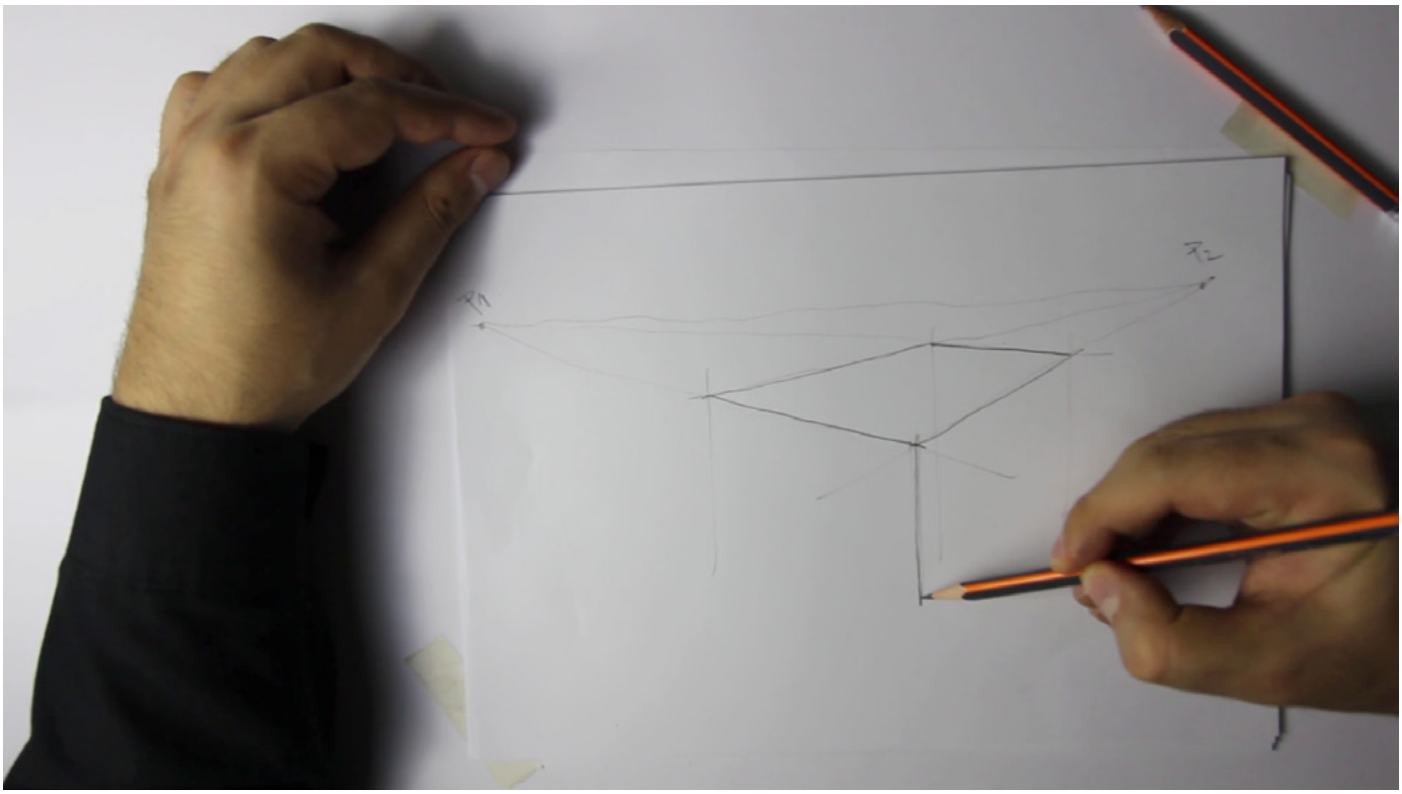
3.)An object that is so large that it goes above and below your perspective line is in a Building View perspective.Just stop for a moment and look out the window at all buildings surrounding you... these all fit into the 'building view' type of perspective.

Obviously, it all depends on the composition of your image - you could have a small object but if you look really close at it might seem like it is drawn in building view perspective.

Top Down Box Perspective

We will start with 'top down' perspective view...

Draw a horizon line, choose two perspective points (careful that one is on the page while the other one is off the page, thus ending up with an unsymmetrical perspective).



Draw the top of the box, choose the height (relating to the front vertical edge as it is closest to the viewer so most relevant for choosing the proper object height).

Draw all the construction lines (resist the temptation to skip the back lines) then thicken the contour lines, and that's it.

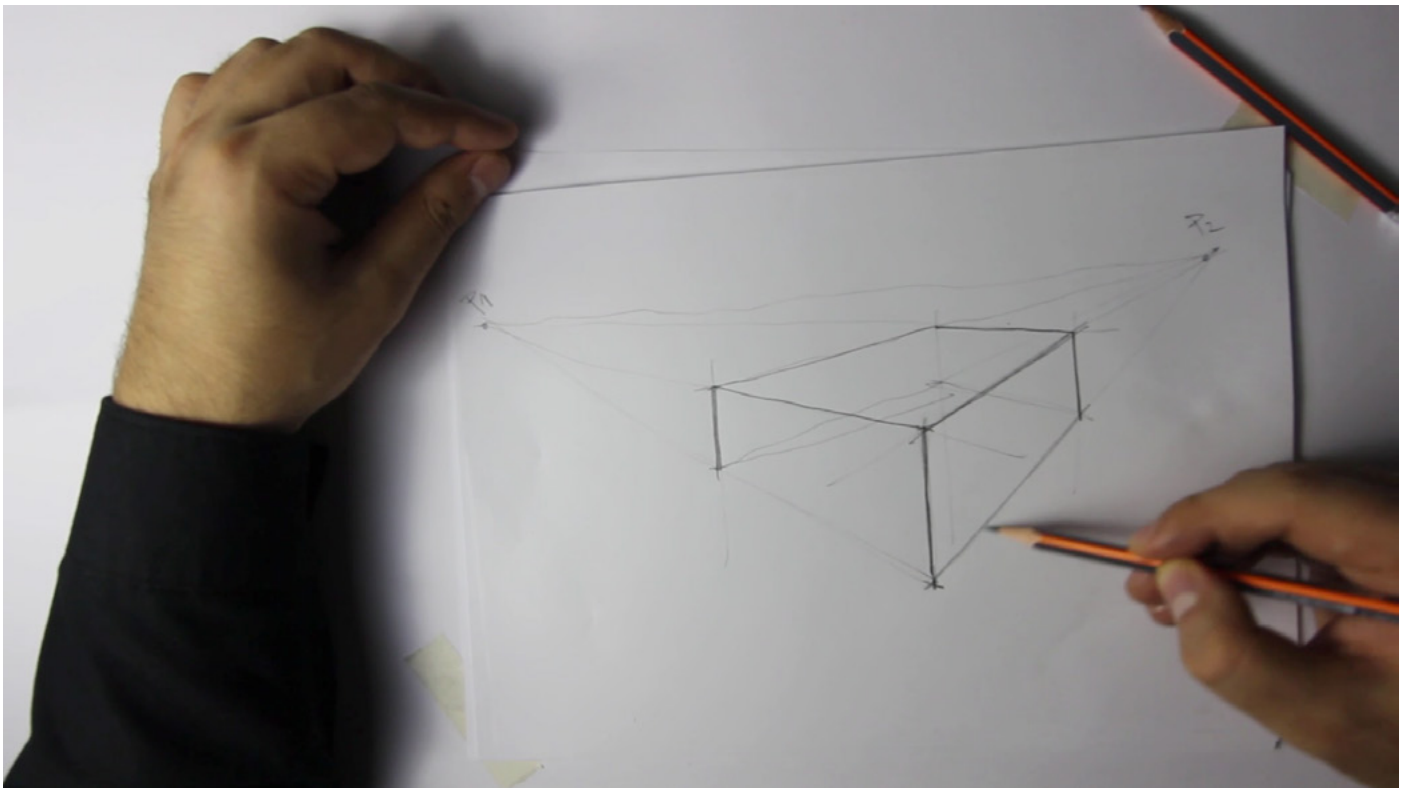
So, ashort recap: horizon line, two perspective points, top face of the box, heights, bottom of the box, and thicken contour lines.

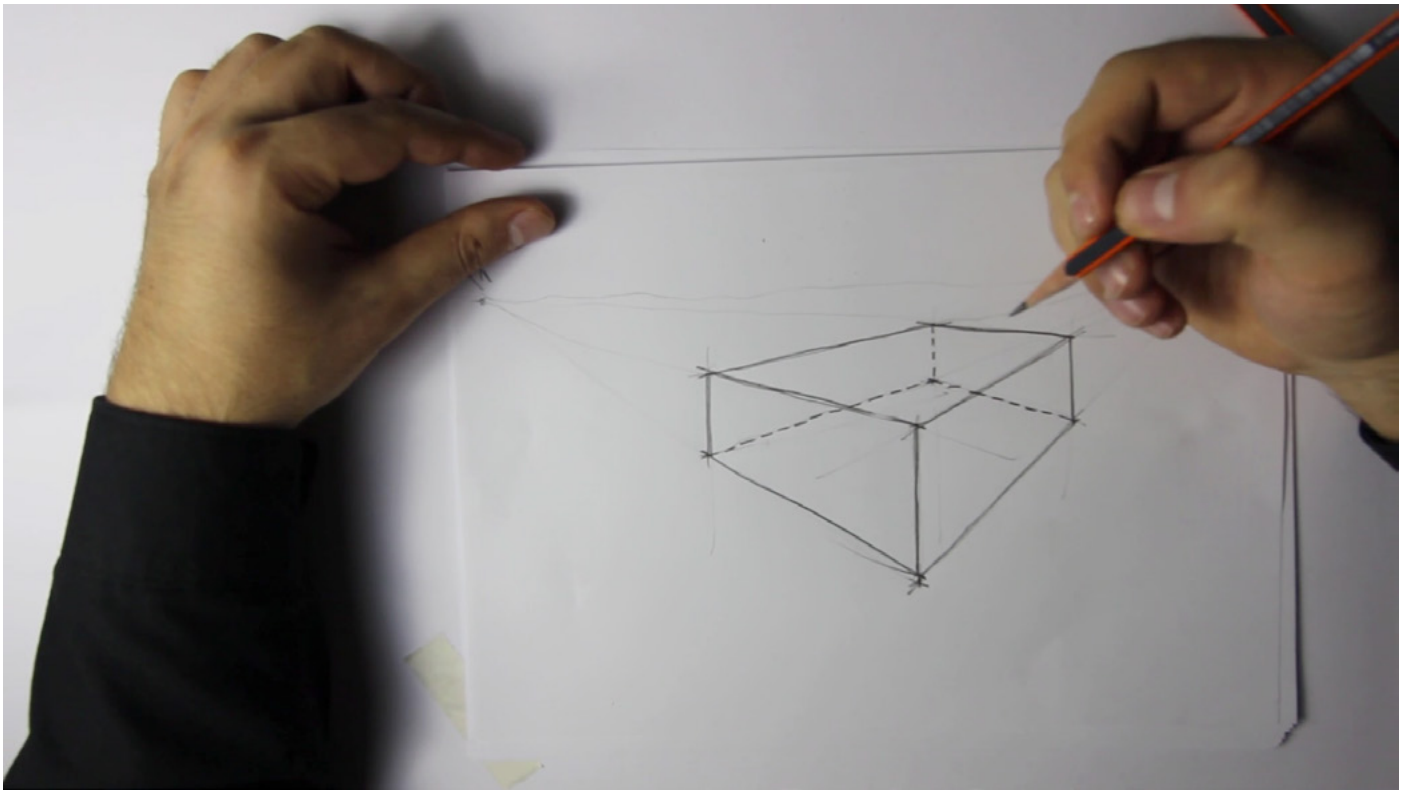
Be careful at one thing - when you are drawing your first perspective, youwill more than likely end up drawing a really small drawing.

That is inevitable as you are a beginner at the moment and still a bit uncomfortable with drawing.

Draw a large perspective that will fill the entire A4 page.

This is what you need to be doing for now; we will be focusing on cast shadows and hatching a bit later...

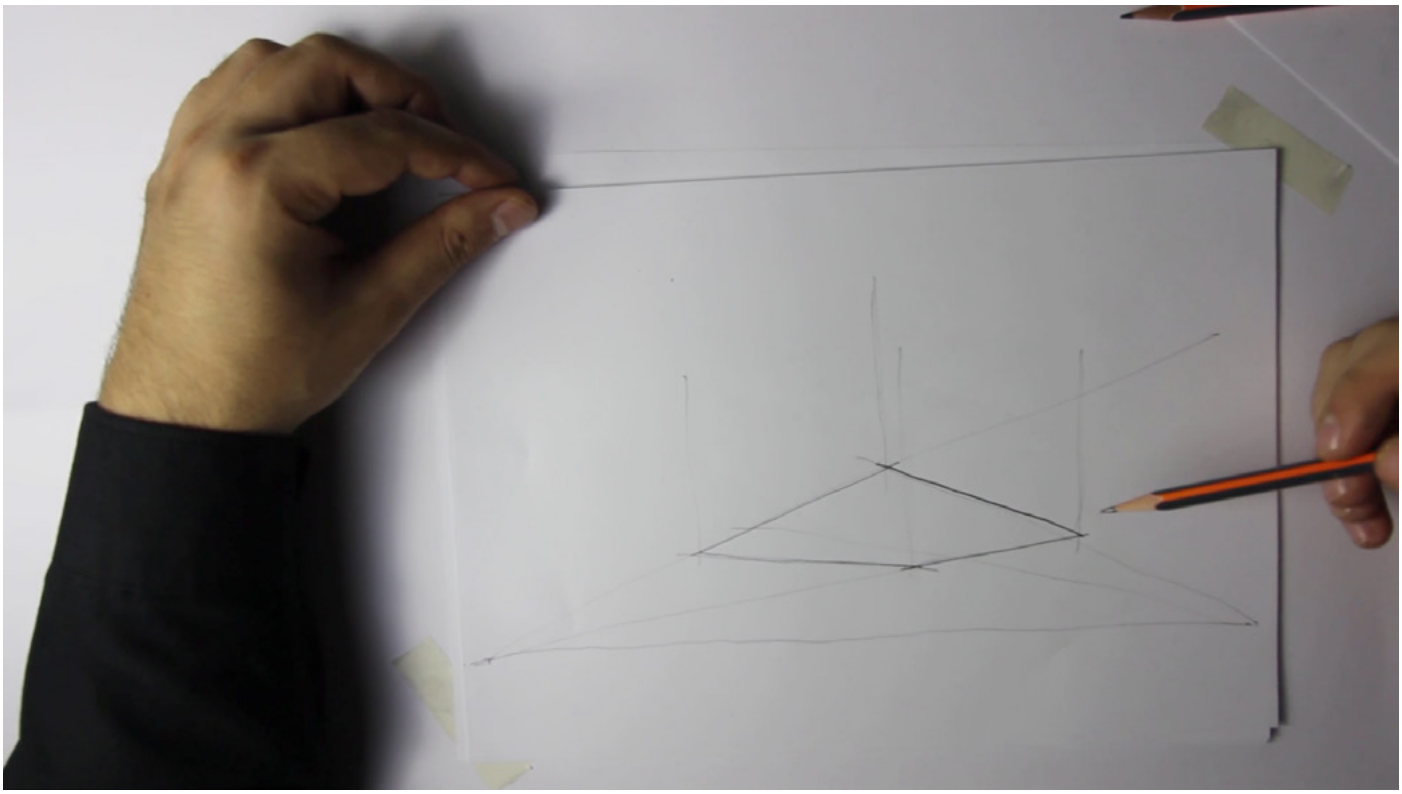




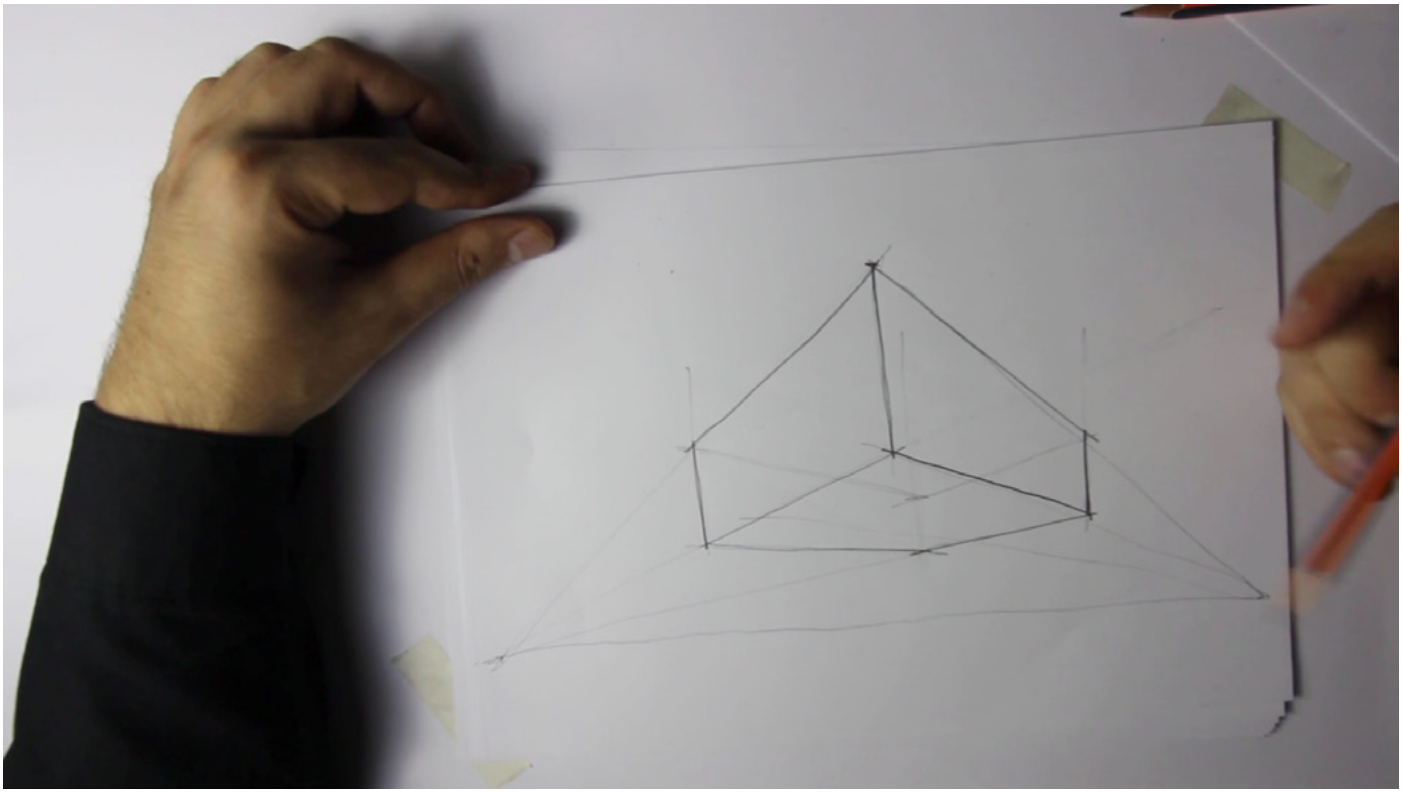
Bottom Up Box Perspective

Bottom-up perspectives are symmetrical to the top-down perspectives.

Start off with the horizon line being drawn at the bottom third of the page, then constructing the bottom of our box.

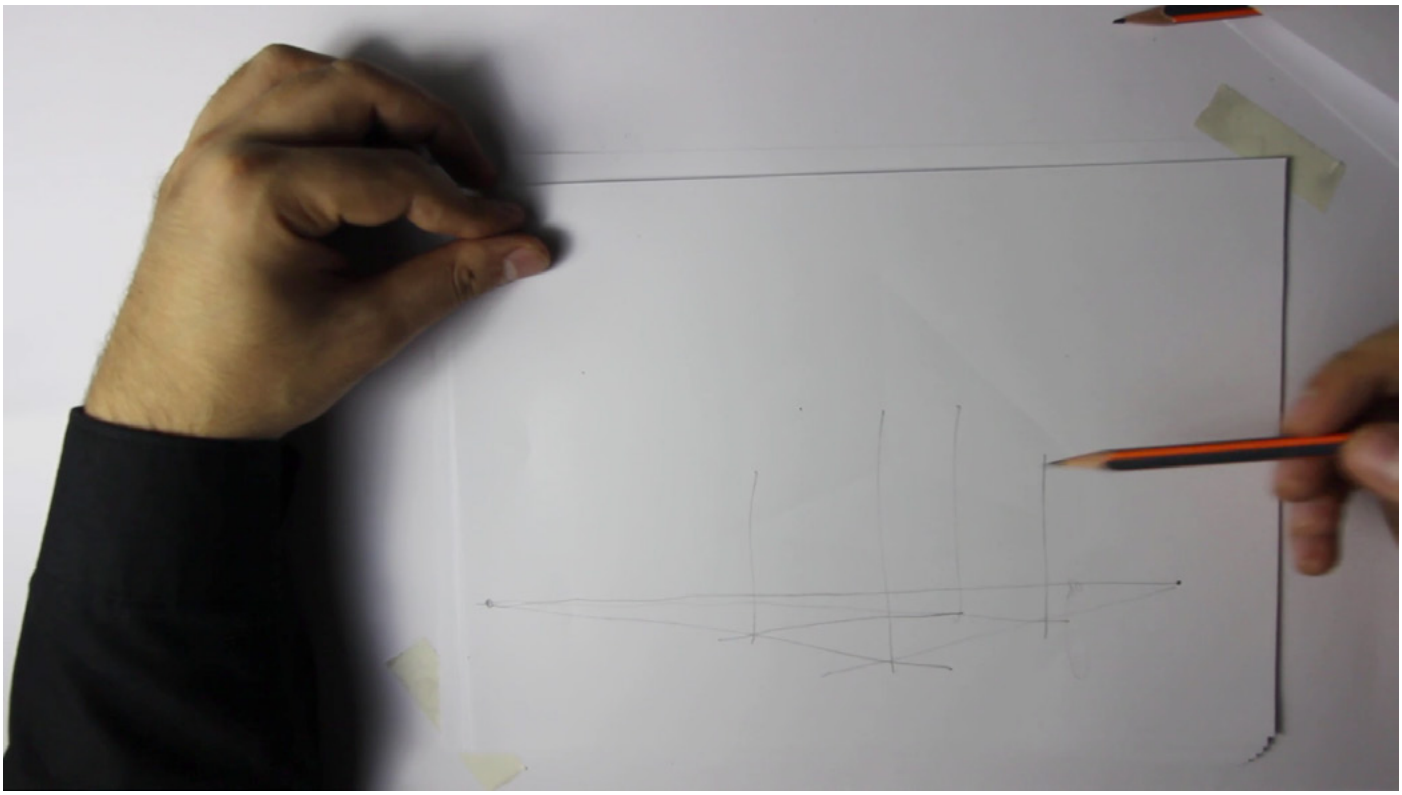


Then we will go for drawing heights and are the mirrored line construction of the standard top-down perspective... the only difference being that you start with constructing the bottom of the box and you move up from there, in contrast to starting off with the top of the box and going down.



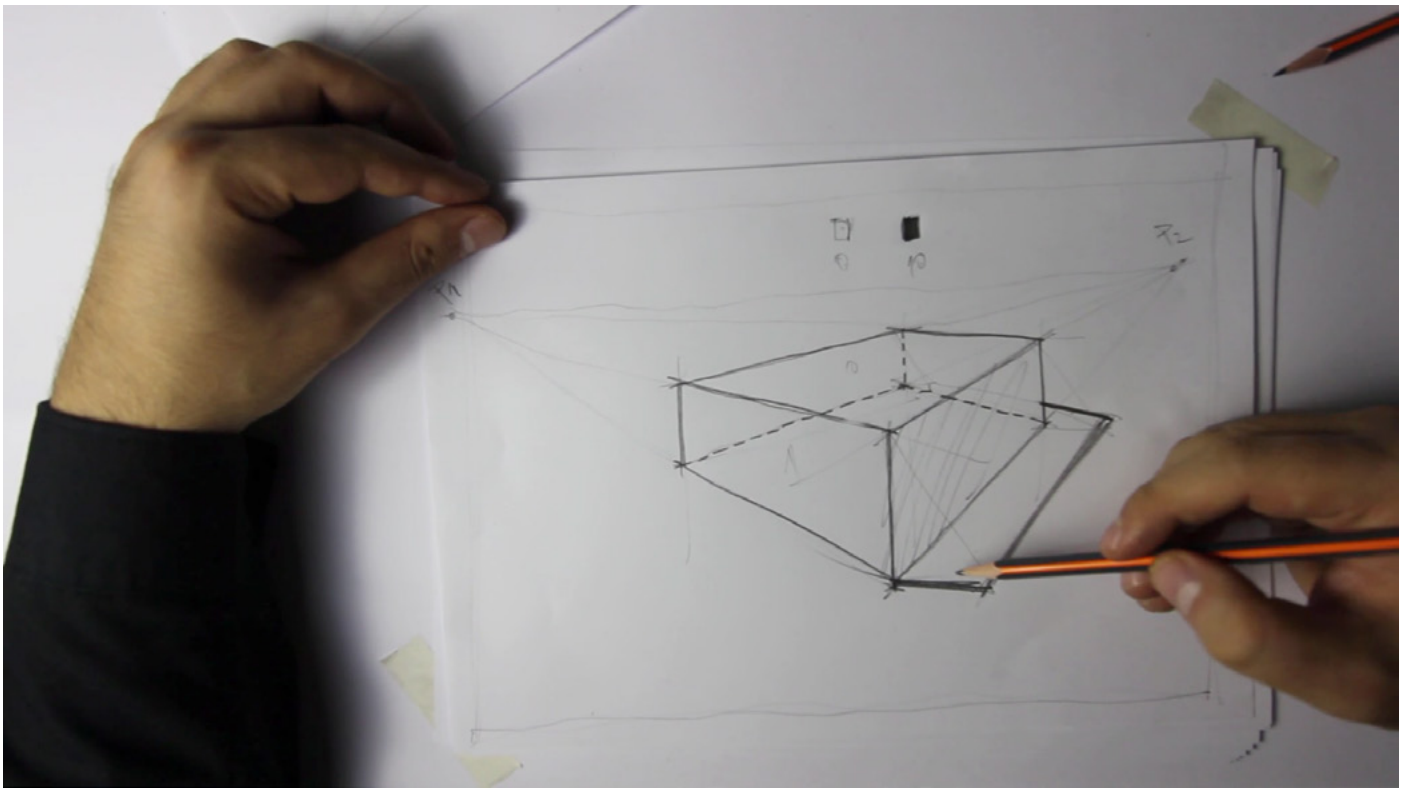
Building View Box Perspective

For a 'Building View' perspective, you can start off with the base of the box and then go up just as before.



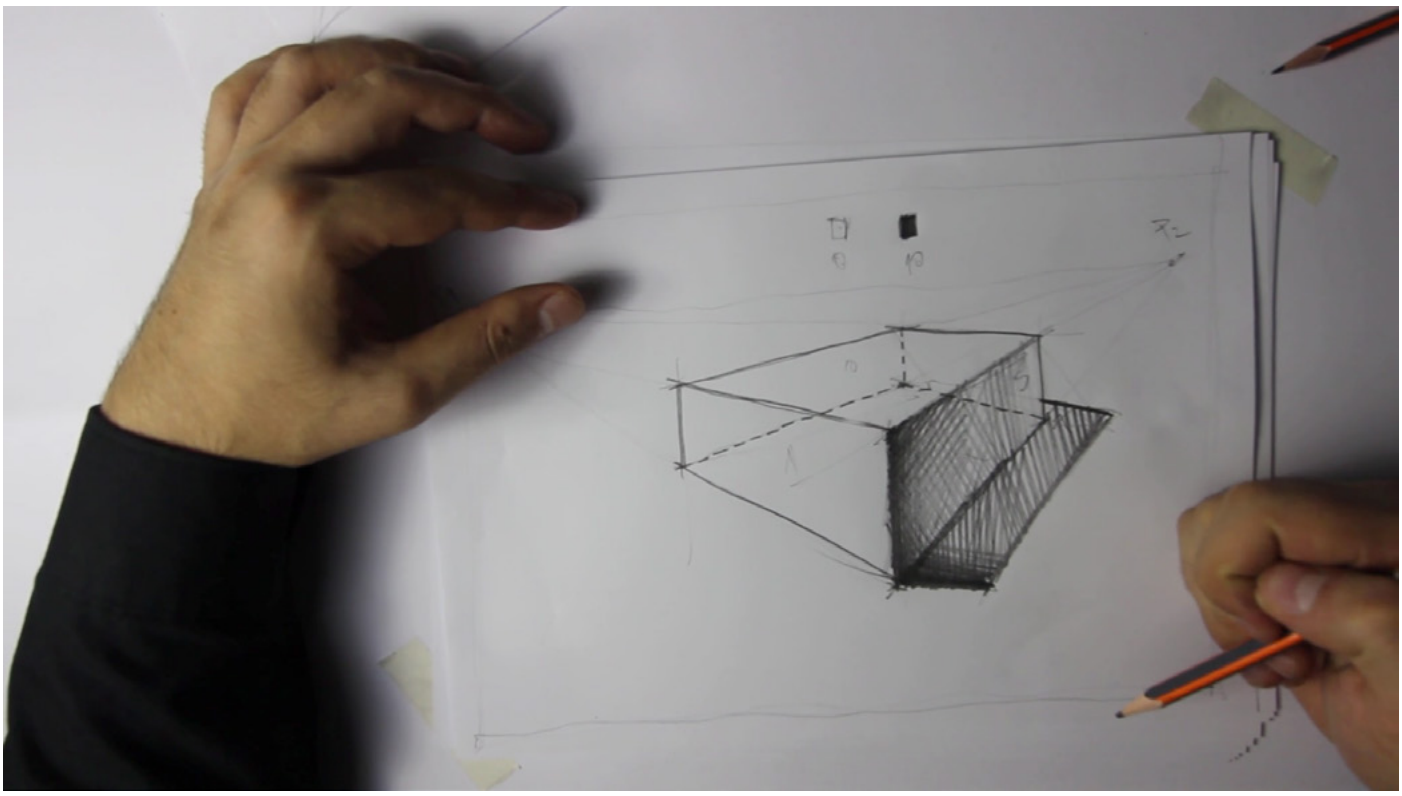
Just remember, you need to measure the height of the box on its closest edge - this way you will have an accurate measurement of the perspective height.

Top Down Hatch Shadows



Hatching a top-down perspective is really simple: just construct an estimated cast shadow on the short side, then hatch the shadowed face adjacent to the cast shadow.

Hopefully, by now, you have realised that the shorter face of the box is always in shadow, while the longer one is directly hit by light.

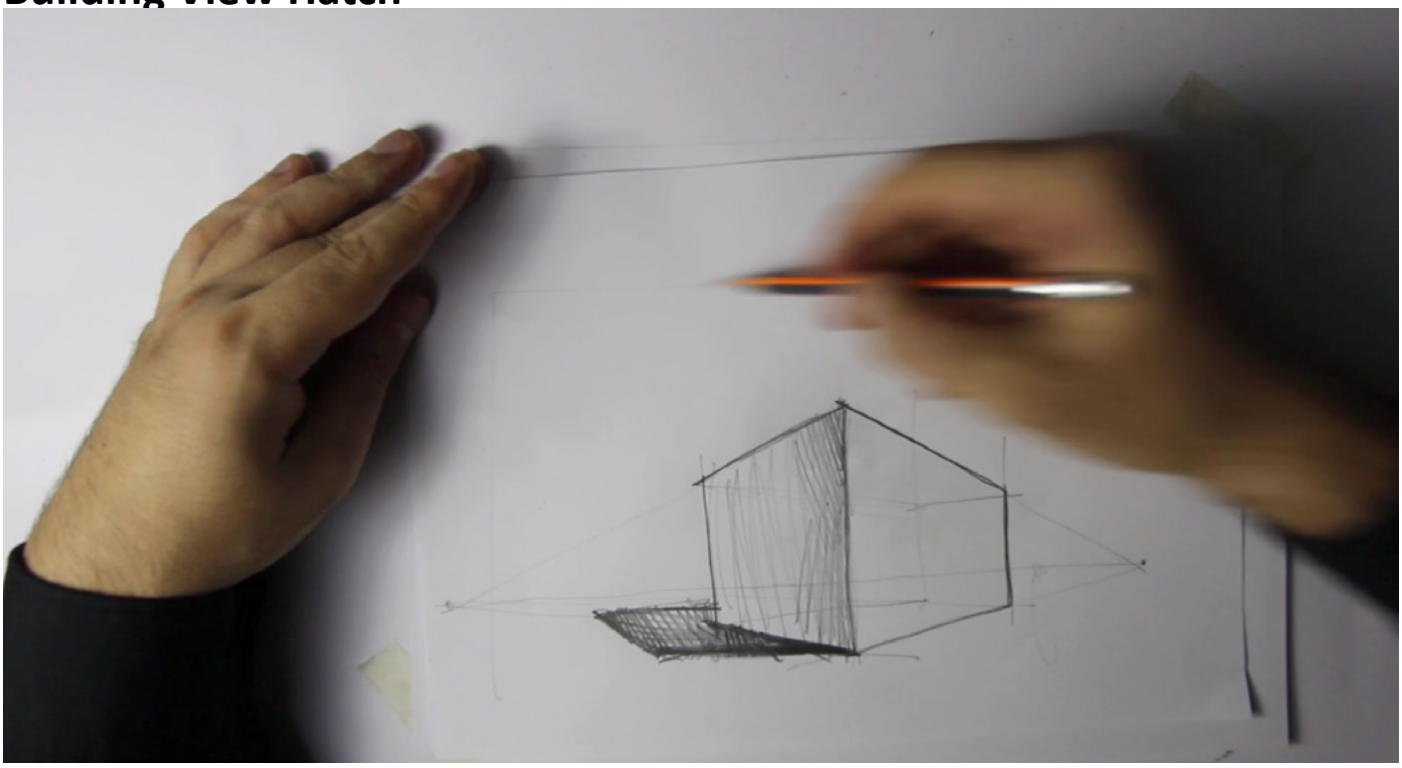


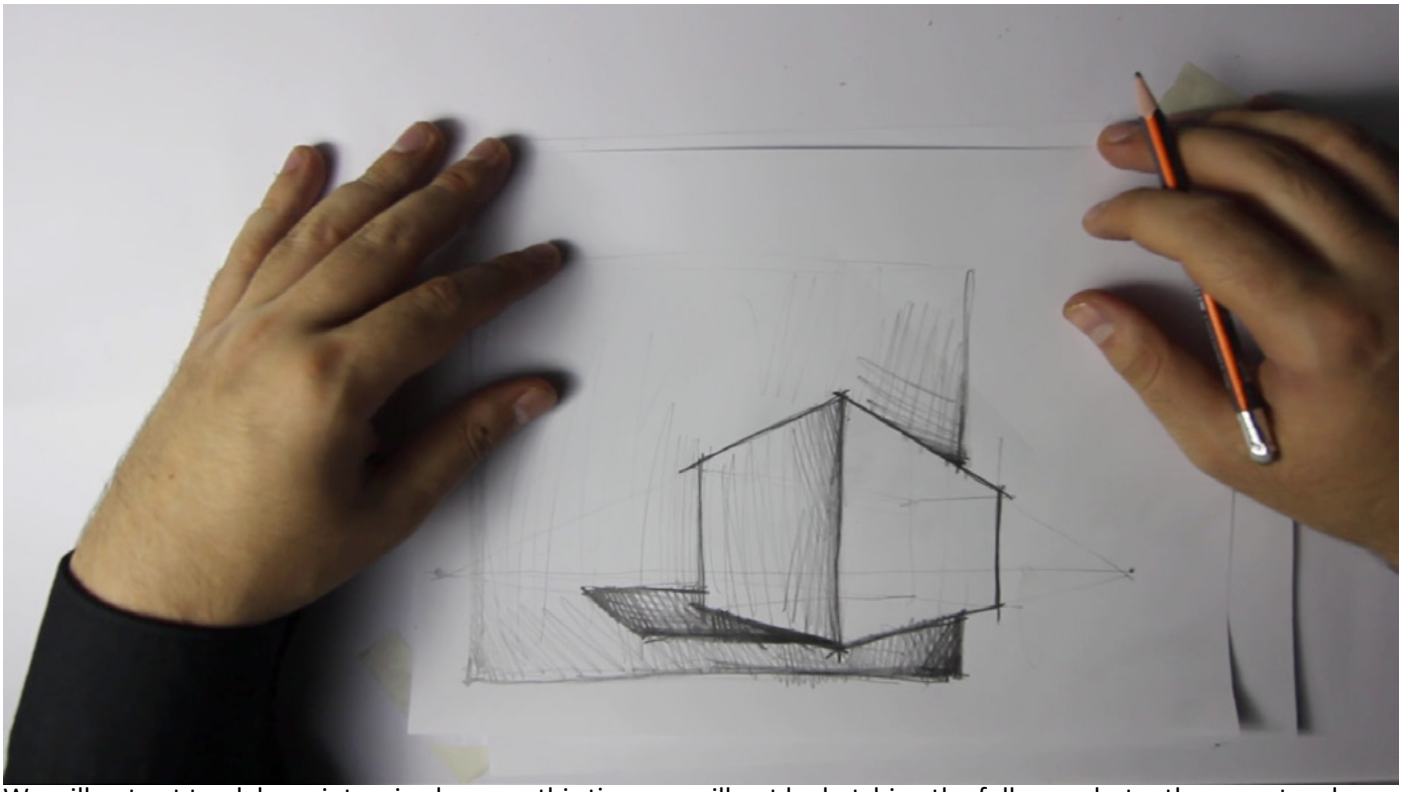
Also, the intensity of the cast shadow should be 10 to 8 (according to how close the shadow is in perspective), and that of the shadowed face should vary from 5 to 3, following the same rationale.

Hatch Top Down Background

The top-down perspective follows a similar approach, the difference being that a top-down perspective might have a cast shadow that goes about both faces of the object.

Building View Hatch





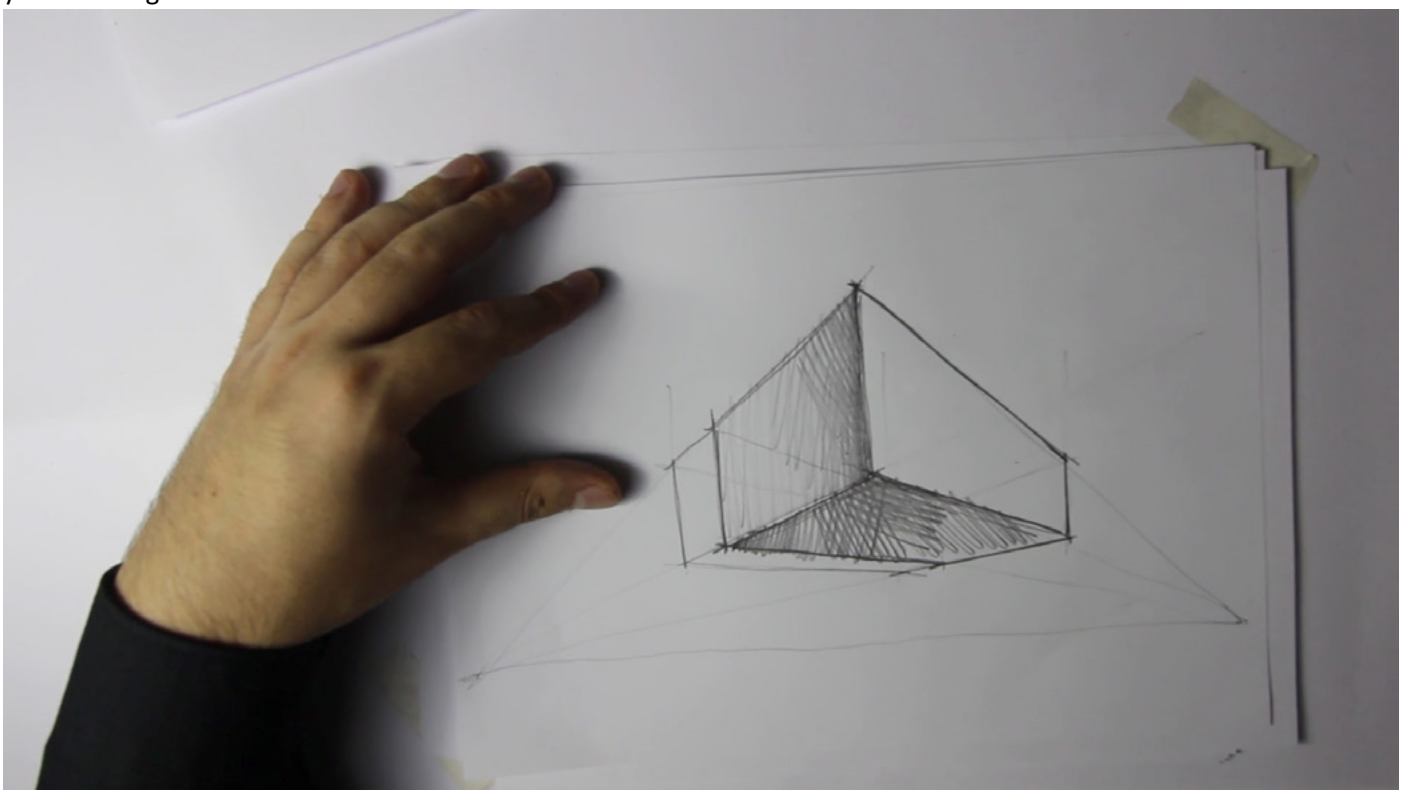
We will not get too labour-intensive here, so this time we will not be hatching the full page, but rather a rectangle.

Truth be told, these backgrounds are sometimes borderline 'fluff drawing' elements... so we need to do them not to make our drawing take twice as much time or to distract attention from the main elements of our composition... but to make our initial volume stand out.

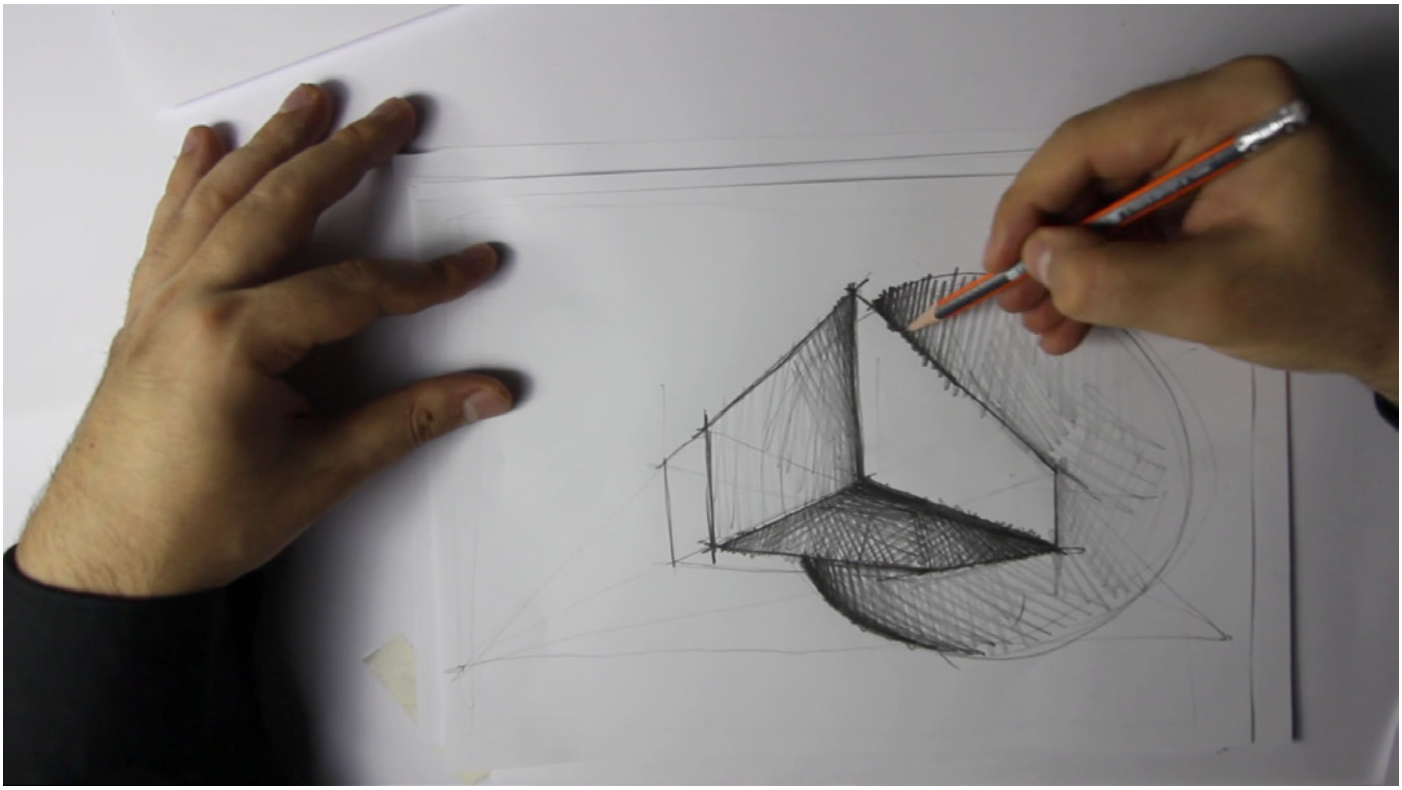
A smaller rectangle will suffice to achieve that effect for now.

Bottom Up Hatch

Following the same line of reasoning, we will draw a circular background this time... this will add more dynamism to your drawing and take less time to finish.



Although hatching and line drawing are essential when you are starting off, it is best that you invest your energy in things that require higher levels of mental focus and sharper skill sets - such as getting the general idea of the perspective by.



QUIZ

What Are The three Types Of Lines For Arch Drawing In The Correct Order?

- Contour, hatched lines, smudged lines.
- Construction lines, contour lines, thick lines.
- Free lines, technical lines, constructed lines.

Line Drawing And Hatching:

- Cross hatching for filling up large parts of the drawing with color.
- You should draw feeling self conscious and worried to not make any huge mistake, a drawing being too bold is a risk not worth taking.
- I can use smudged hatching to finish the whole drawing.
- Architecture drawings are seen from a 1,5m/3m/6m distance- you need to exaggerate the contrast and clarity of your work so it looks good from the distance that matters.

Which Of The Following Is A Mistake That Will Make Your Drawing Look Bad?

- An optical illusion because of different perspective lines overlapping.
- Drawing a symmetrical perspective (with both two faces having the same proportion).
- You do not construct the back edges of the drawing because nobody sees those anyway.
- The perspective points are too close together.
- Your drawing has a lot of contrast and looks too bold.
- Your drawing is too small in comparison to the size of the page.
- Some drawing lines do not converge to perspective points.

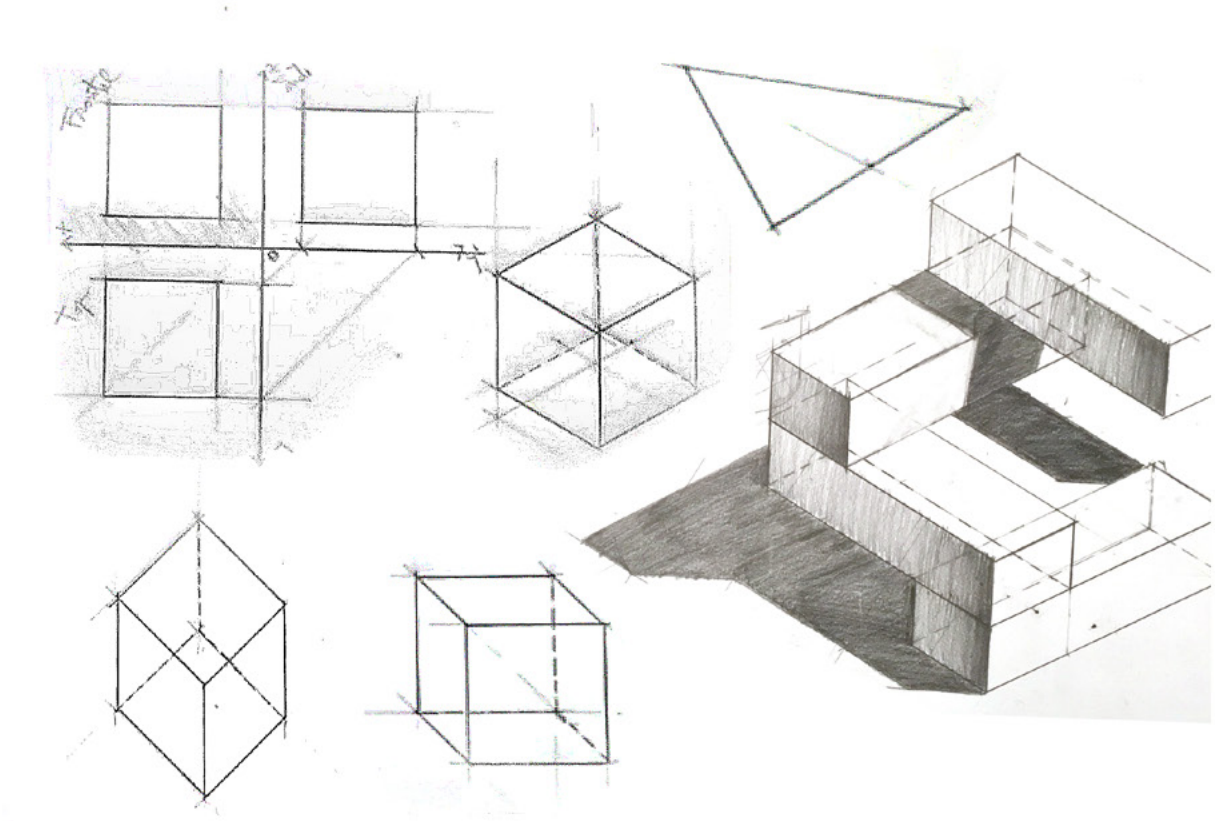
What Are The Side Effects Of Not Constructing A Volume In 3D?

- You will mess up your architectural thinking and sense of perspective.
- You cannot construct correct cast shadows after.
- You cannot imagine volumes correctly and are thus stuck in 2d thinking.
- There are no side effects, if you cannot see the back lines why draw them?

Hatching?

- You only hatch materiality (wood or stainless steel) and shadows.
- Volume and cast shadows are hatched, the areas which are directly hit by light stay white.
- The objects which are closer in perspective have darker hatching.
- Cross hatching is supposed to be around 4 cm wide to get a good balance of graphics and time efficiency.
- All volumes need to be hatched with the same intensity.
- Hatching with a 1 cm hatching is a really good idea - it will add a lot of sensibility and quality to your drawing.
- Contrast is a bad idea - it just distracts from your drawing and makes your ideas look.
- You use textured and smudged hatching to fill large portions of the page with colour and then give clarity (which is very important in all architecture drawings).

Axonometrics and Triple Projections



Intro:
The exercises here are the basics of technical drawing. Go through them at your own pace so you get used to the feeling of how technical drawing works.

Assignment:
Draw the triple projections and axonometrics of a 5 cm cube in the three different coordinate systems. Also, draw the even triangle and circle in triple projection and axononometric.

Key points:
- The most complicated part always is getting started, get used to how technical drawing works for you.
- Practice these very basic exercises and understand them 100% - it will only get more and more interesting from now on!

ADVANCED DRAWING AND DESIGN

Lesson #2 Technical Drawing 1.0 - Axonometricsand Triple Projection

Lesson Objectives:

- Break the ice with technical drawing.
- Understand the difference between triple projection and axonometric drawing.
- Understanding the difference between drawing a triple projection 2D shape and an axonometric 2D shape.
- Get a basic visual vocabulary of 2D shapes.
-

Focus On:

- Always keep your drawing tools in pristine condition: this will guarantee you will smudge less when drawing technical
- Technical drawing is about line clarity. So always ask yourself if your drawing has clear construction/contour/section lines
- Always keep parallel lines parallel - double check that your triangles and T-square are perfectly aligned to your drawing board when drawing

Possible Mistakes:

- Most studentsthink they absolutely need a mechanical pencil to draw technical. The truth is that a standard, well-sharpened 2B pencil is enough to get decent results with any technical piece
- Careful of the two pitfalls in technical drawing - smudging the page and not drawing parallel lines parallel. Be on your guard for both of these, clean up your technical drawing style
- Technical is the left-brained, problem-solving type of drawing. Even if you have this gut level reaction that you will not like technical drawing, don't forget that - getting better at technical drawing will upgrade your freehand drawing as well.

Introduction To Technical Drawing

Technical drawing boils down to two-dimensional technical drawing (triple projection) and three-dimensional technical drawing (axonometric).

Triple Projections meansdescribing a 3D volume using a frontal, top and side view which are linked by means of a basic Ox,Oy,Oz coordinate system.

Axonometric describes a 3D volume using a 3D representation.

The difference between an axonometric and a perspective is that the lines which are parallel in real life, stay parallel in an axonometric, while the lines which are parallel in perspective converge to the same perspective point.

Also, axonometric can have a scale, which implies the drawing is proportionally smaller than the original, real-life object by a certain standardisedpercentage(100 times smaller, 50 times, 200, 20,etc.).

Examples Of Technical Drawing

Technical drawing (both triple projection and axonometric) can be combined with freehand drawing to create interesting artistic pieces.

Facades (frontal views of buildings) benefit from a higher amount of detailing in order to communicate as much information as possible - information such as materiality, the way light falls on the facade, construction details, colours, human scale, etc.

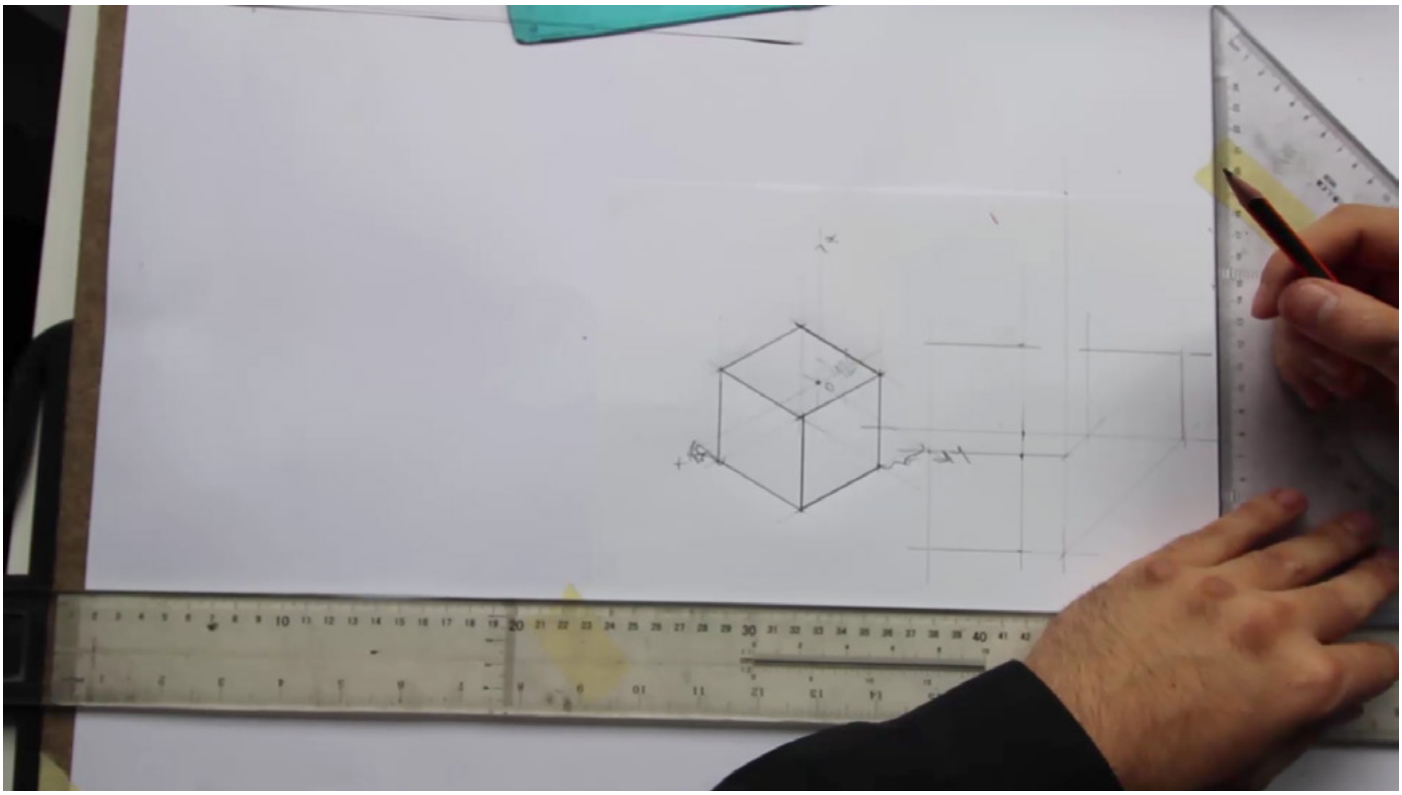
Axonometric of rooms need as much detailing as possible, to better represent the mood of the interior spaces and to move the drawing as quickly as possible from ‘a couple of construction line boxes’ to an interior space.

Keep in mind though, all these examples are still technical drawings.

They need to first be correct to respect the drawing’s scale and all the parallel edges to really be parallel... and then to be artistically expressive.

Floating Cube

The first exercise for technical drawing is a triple projection and axonometric of a simple cube, then of a cube floating 1 cm from the ground.



The top view for a simple and floating are the same, the only difference is with the frontal and side views.

The isometric axonometric is the standard type of axo you will be using 99% of times in architectural drawing.

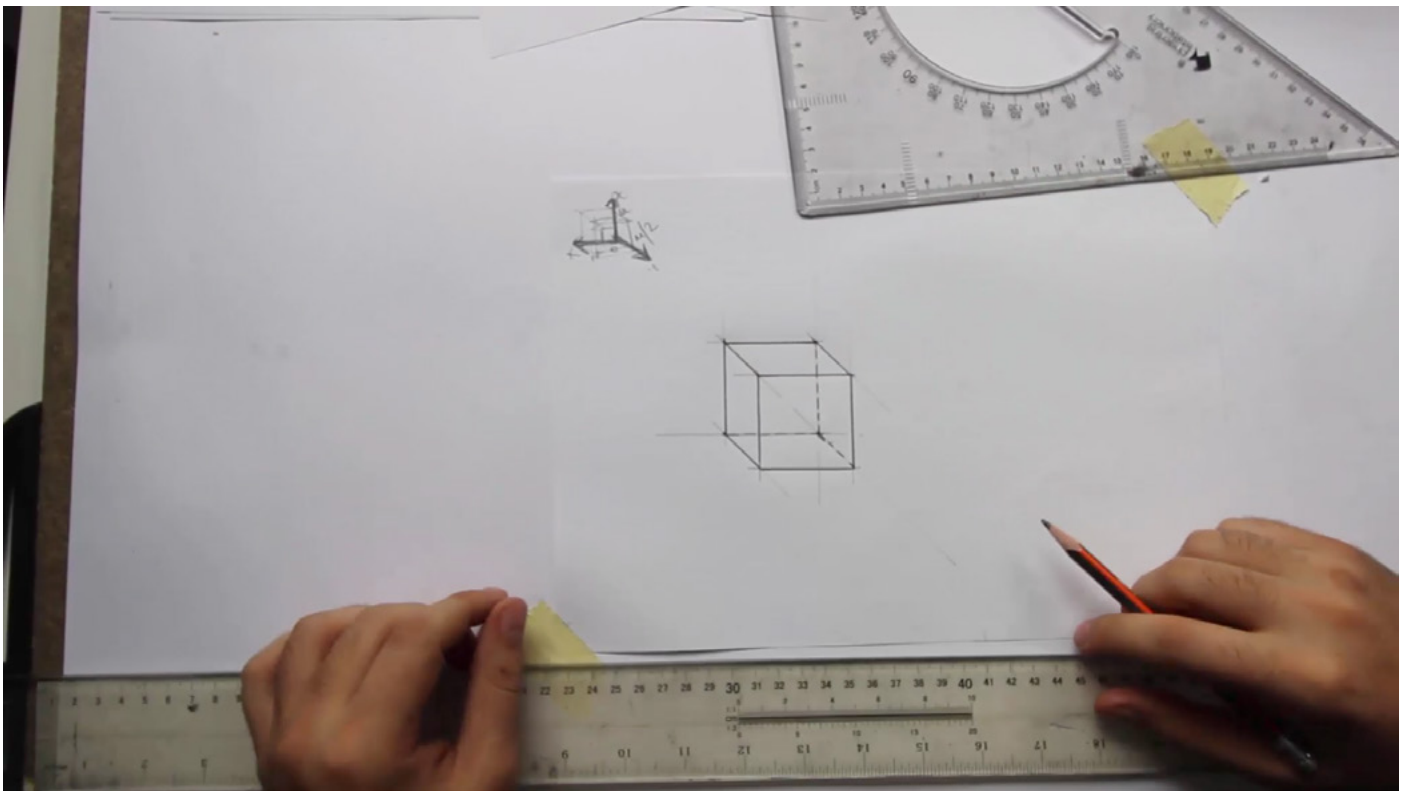
It implies a 120-degree angle between the three axes and the same unit of measure for Ox, Oy and Oz.

Cavalier Axonometric

A cavalier axonometric is slightly different than the standard isometric axo as it has a 90-degree angle between the Ox and Oy axis and 135 degrees between Ox and Oz, Oy and Oz.

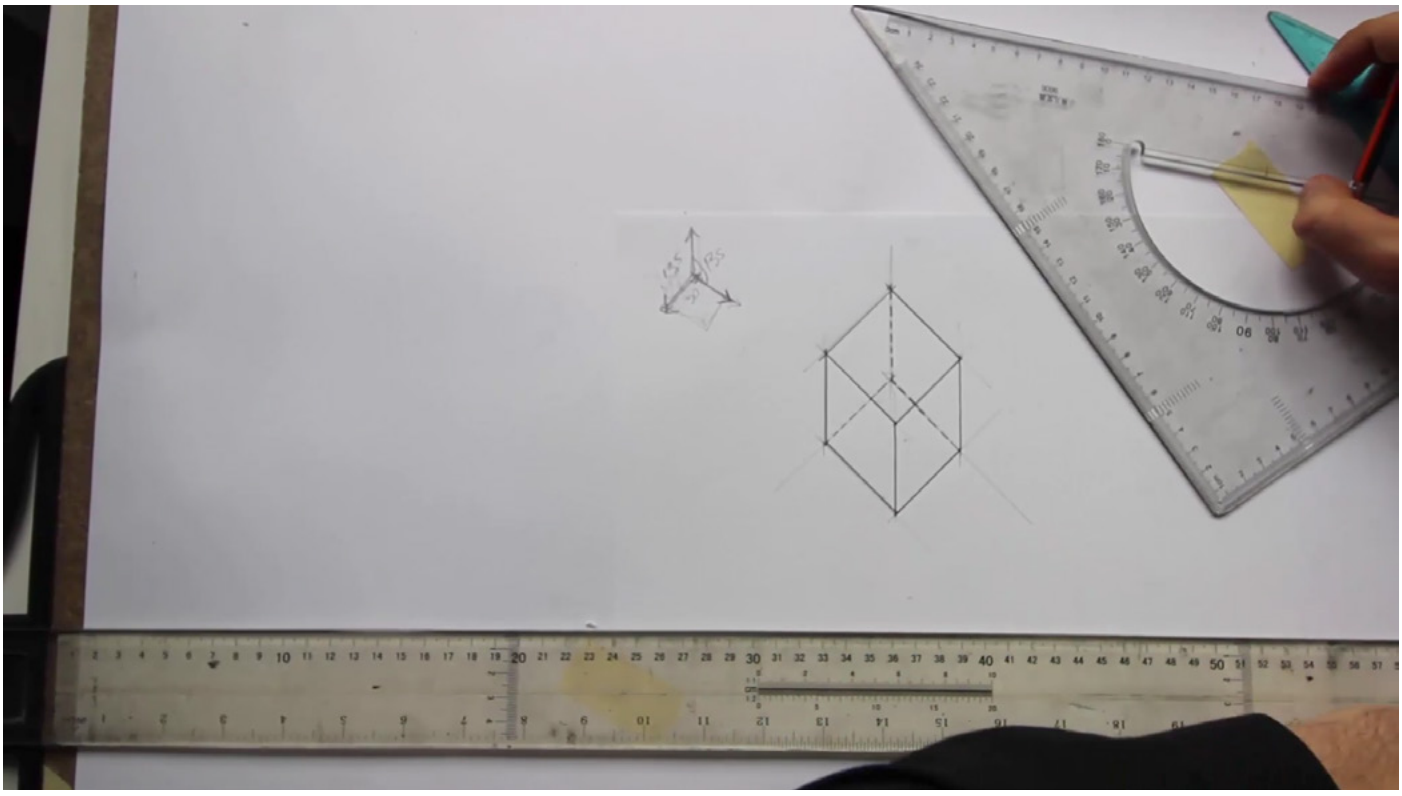
It is the easiest approach to drawing something starting from a plan as it just implies you need to rotate the plan 45 degtrees then add heights.

In comparison, an isometric axo would require you to draw the plan modified in relation to the 120-degree coordinate system and then go for heights.



Dimetric Axonometric

The dimetricaxo is unusual as it has a 90-degree angle between the Oz and Oy axis and a 135 degree between Oz and Ox, Oy and Ox.



The Ox axis also has a half the unit the other two axes have... since the name di-metric, meaning two different measurements and units.

Dimetricaxos are an alternative for the other two types - they are really not that common but can be used again as an alternative to the isometric and cavalier.

Technical Drawing Lesson - Simple Shapes

Basic two-dimensional shapes are a key element of architectural thinking as understanding them will help you break down and understand any of the more complex geometrical shapes.

After drawing basic shapes, you will start building a mental system of visually breaking down objects around you into simple shapes, and that will help you see things in three dimensions.

This, in turn, will allow you to see beyond the concrete, physical reality and start understanding the mindsets and visual language behind different types of architecture.

Like Brancusi once said ‘We draw something until we really see it’.

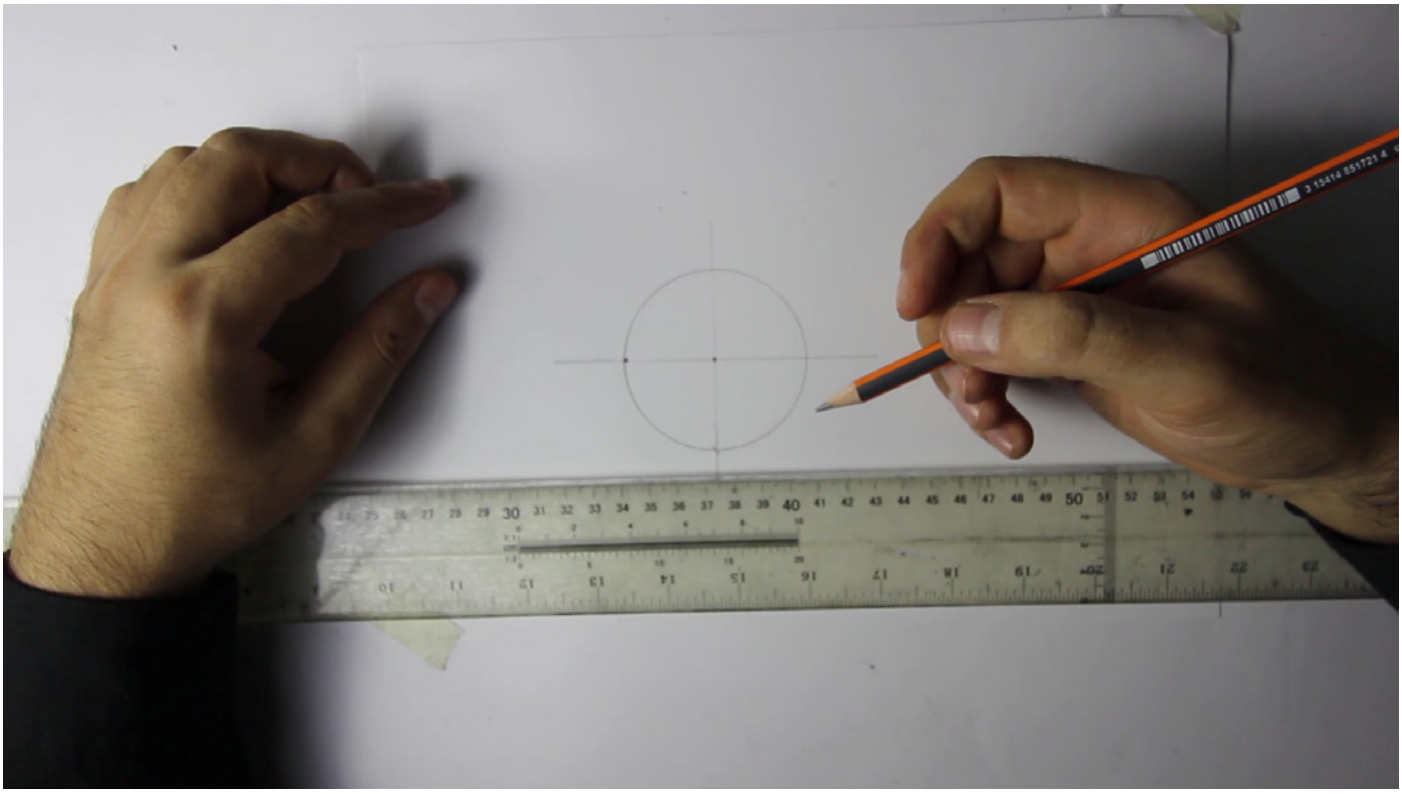
How To Draw A Circle

A circle is a round 2D shape with a centre and radius.

What can you potentially need to know from a circle?

Its radius, length, surface and centre.

In order to correctly draw a circle, you need a compass. You decide the circle’s centre, then its radius and that is enough.



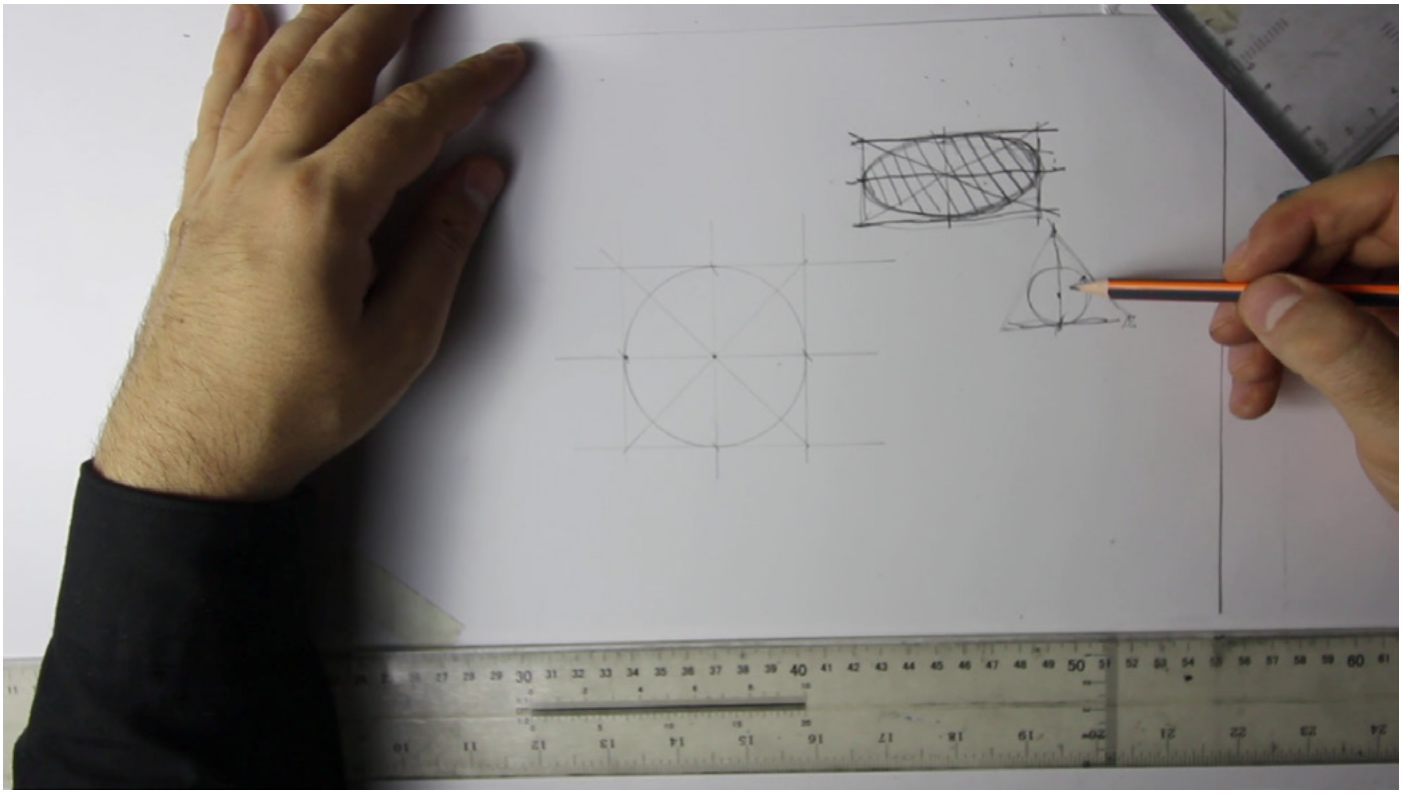
How To Draw An Ellipse (Circle In Axonometric)

Drawing a circle in isometric axonometric is a bit more complex, and the technique of correctly constructing the ellipse is counter-intuitive.

You first need to draw a square in axonometric - we will begin with a 6 cm edge square.

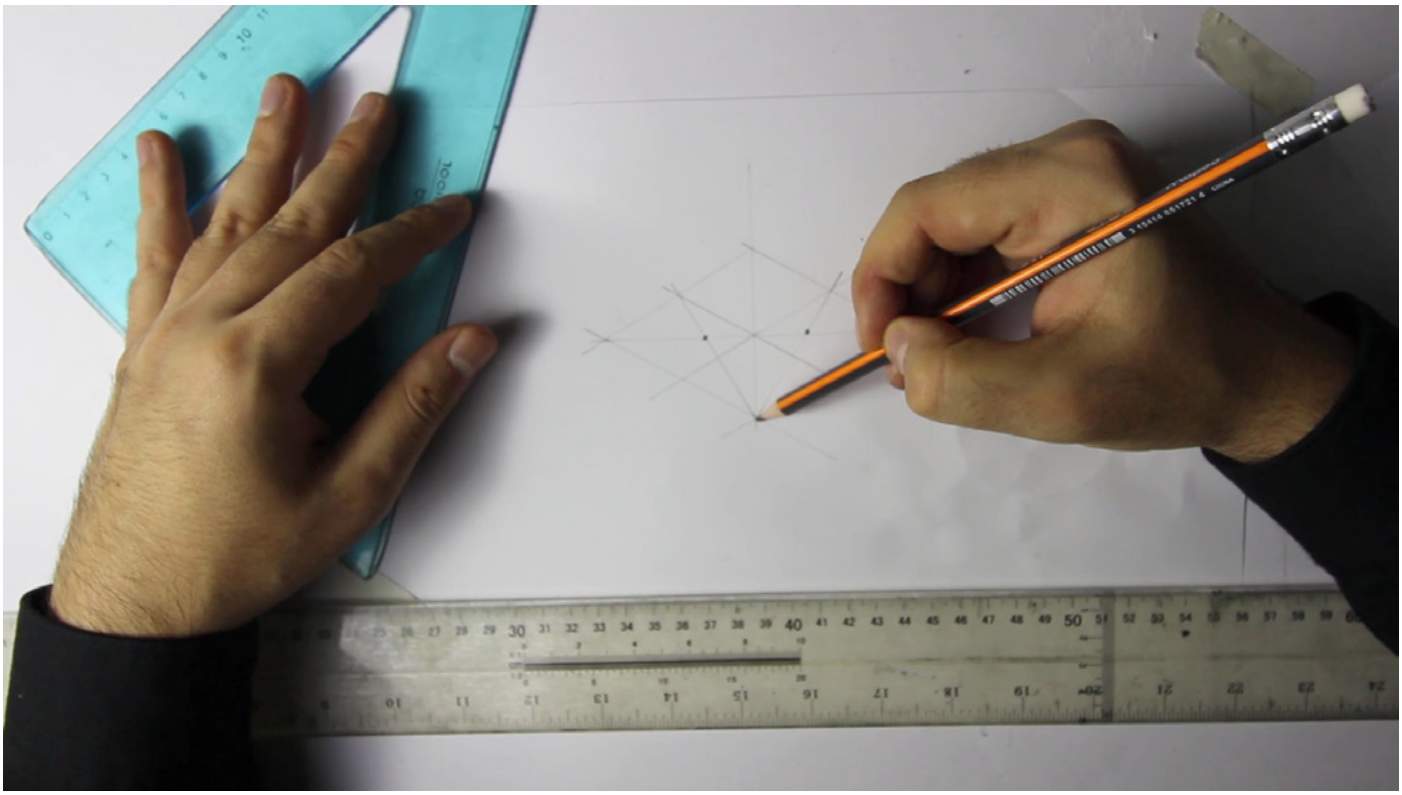
Then draw the diagonals (which for a square in isometric axonometric are a horizontal and vertical line).

From the centre where these two diagonals meet you need to draw parallels to the edges of the square.



Then here comes the interesting part - you need to connect the corner of one square to the middles of the opposing edges. After these two lines intersect the horizontal diagonal, you will get two points.

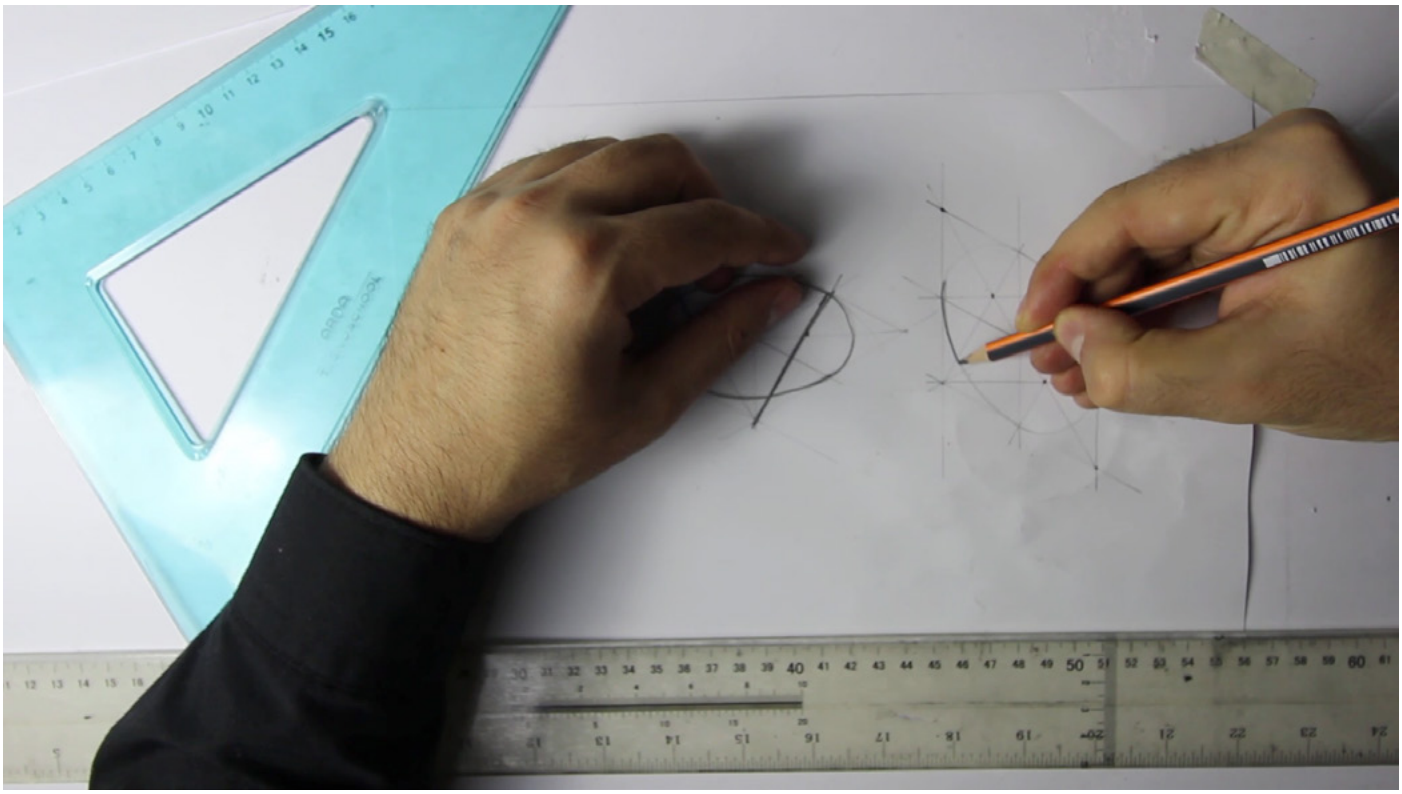
From these two points, you will draw the small arches which go on the sides of the square, then draw the two large arches with lines from the top and bottom corners of the square.



Now you got a horizontal circle in isometric axonometric, next up we will draw a vertical ellipse.

The steps are exactly the same - the only thing you need to realise is that the square is going to have vertical edges and 30-degree lines and that is it.

The horizontal ellipse has both opposing edges at 30 degrees.

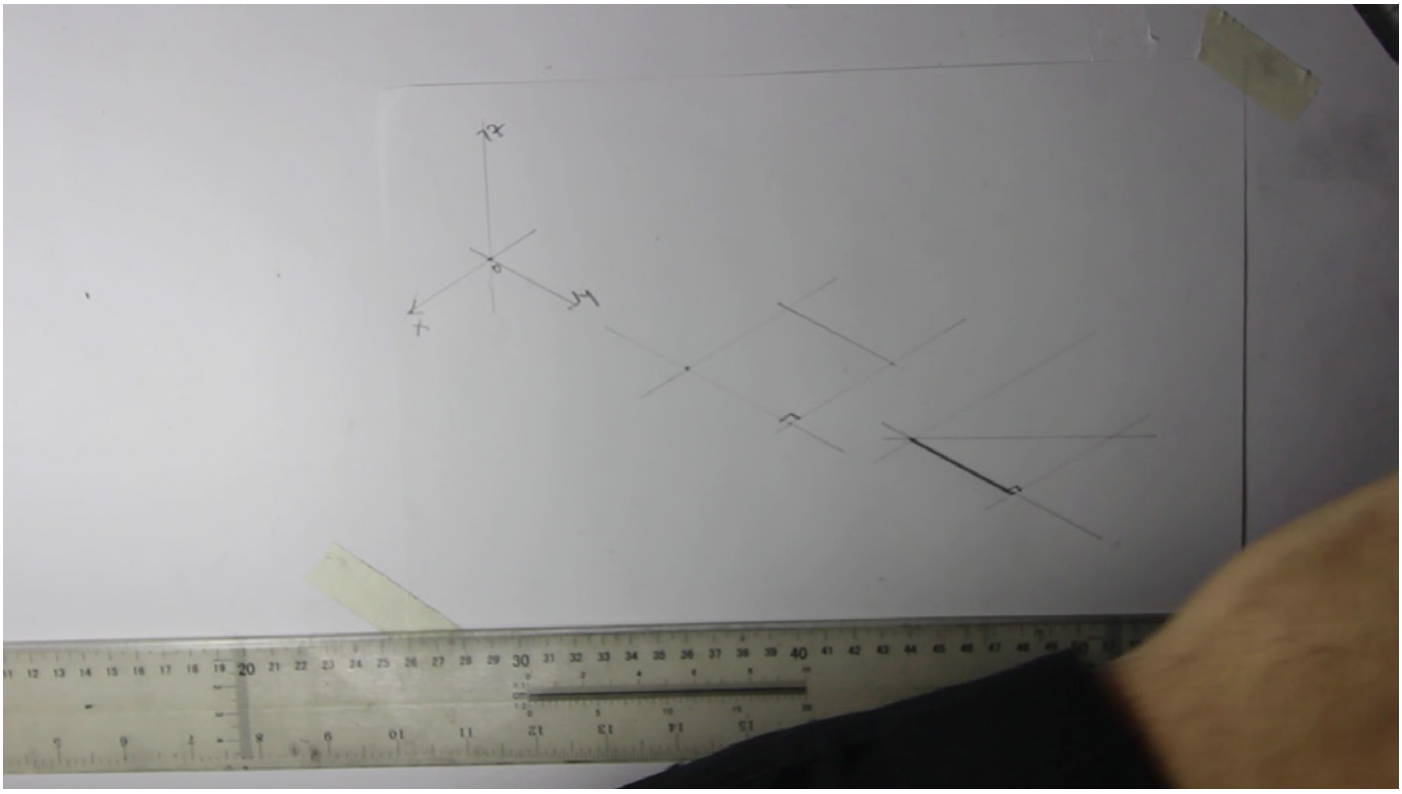


How To Draw A Square In Axonometric

A square is a four edged two-dimensional shape with equal edges and 90-degree angles between all adjacent edges.

A square in axonometric is really easy to draw - just keep in mind that the 90-degree angle comes out of a geometrical construction - so you need to draw a square that has parallel lines to the axonometric's system of reference. Draw a line parallel to one of the coordinate axes, measure the square's edge length, draw the other edge, then by

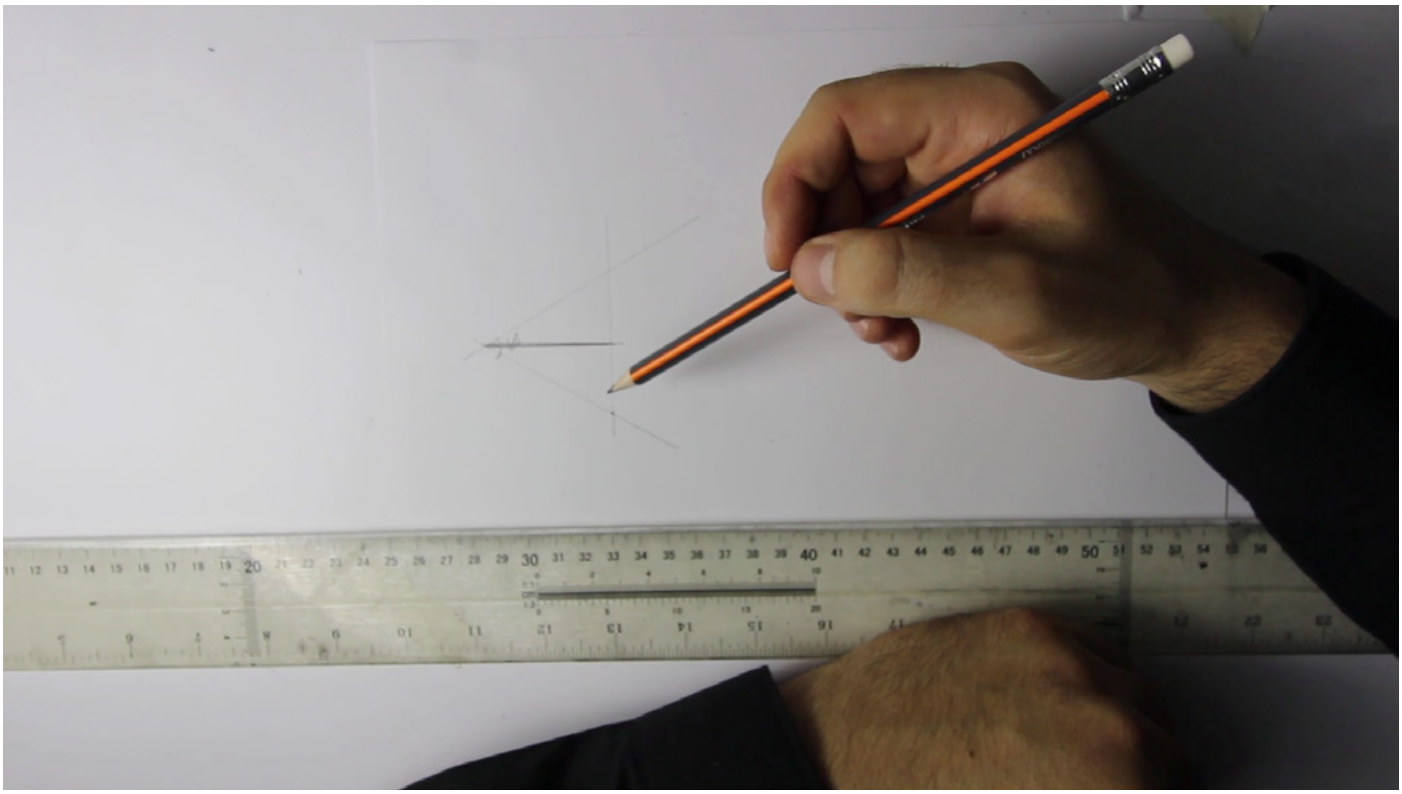
means of parallel lines connect everything together.



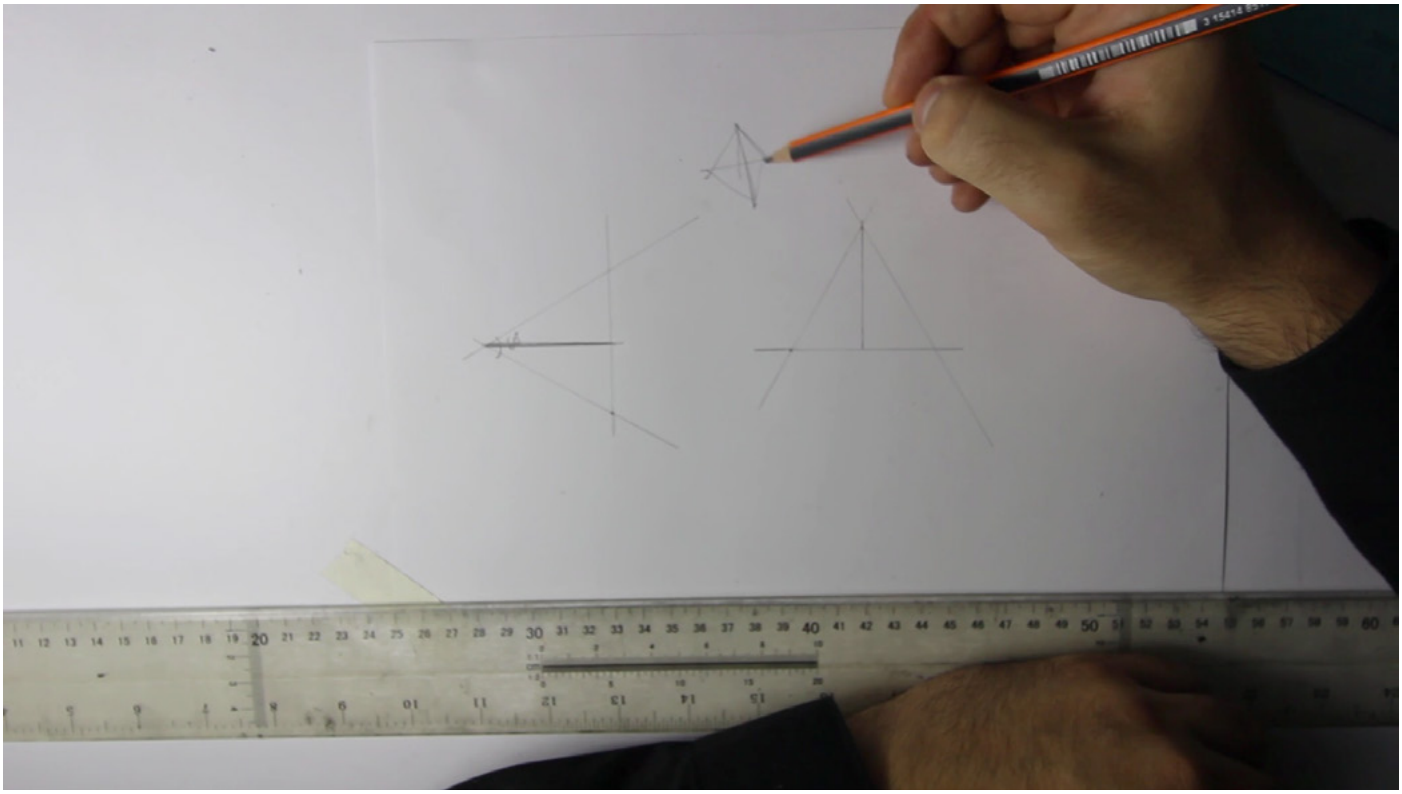
How To Draw An Equilateral Triangle

The standard position for a triangle is with one edge perpendicular to the Ox axis. Drawing it this way will help you a lot when it comes to future descriptive geometry assignments when this triangle will represent the top view for some more complex volumes.

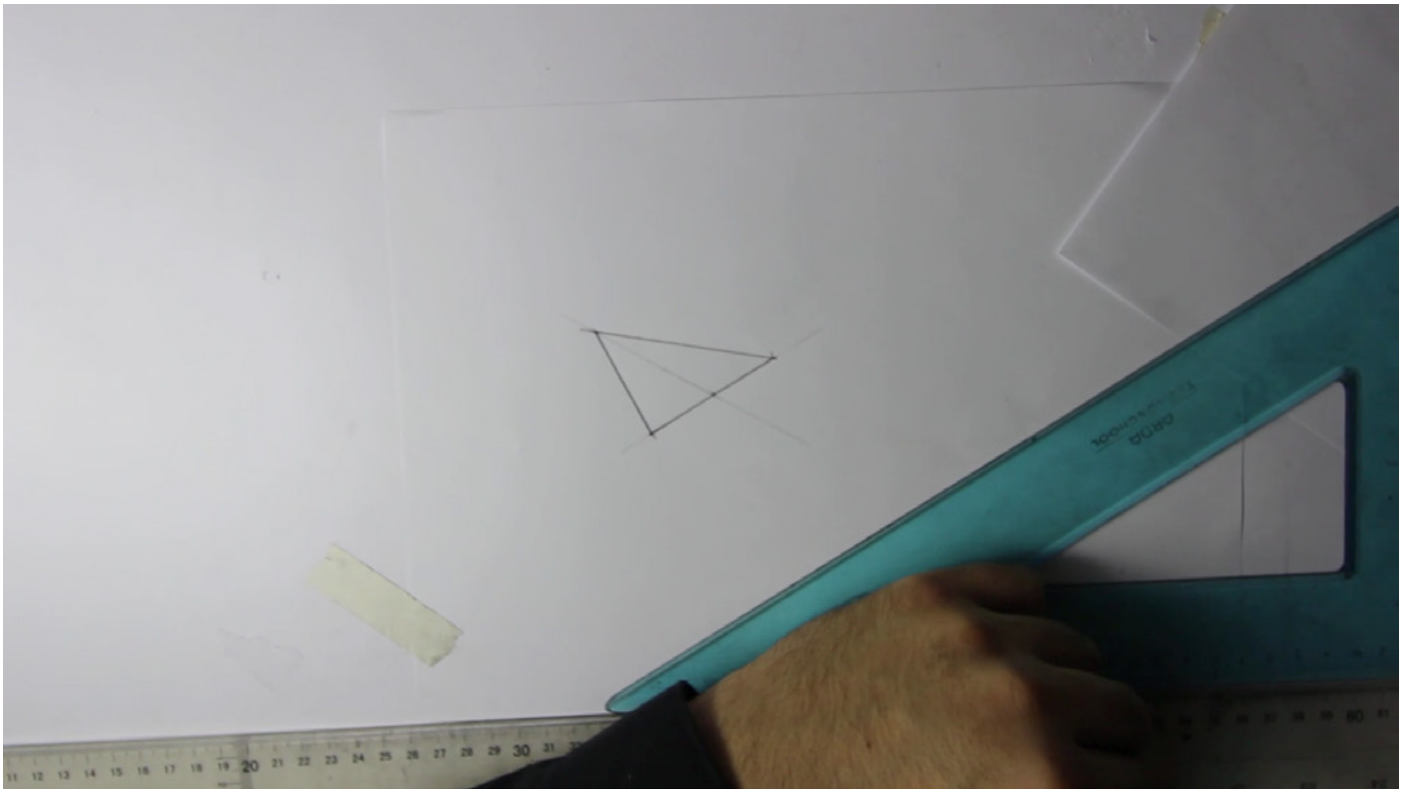
Draw the perpendicular edge, measure the length, draw the height of the triangle the use the standard 60-degree triangle to get an even triangle (which has three 60 degree angles).



You can do this with a compass as well - draw one edge of the triangle as vertical with the height starting from the middle and pointing towards the right-hand side.



Then from one of theend of the vertical edge draw an arch with the same length as the edge and intersect it with the height on the right-hand side.

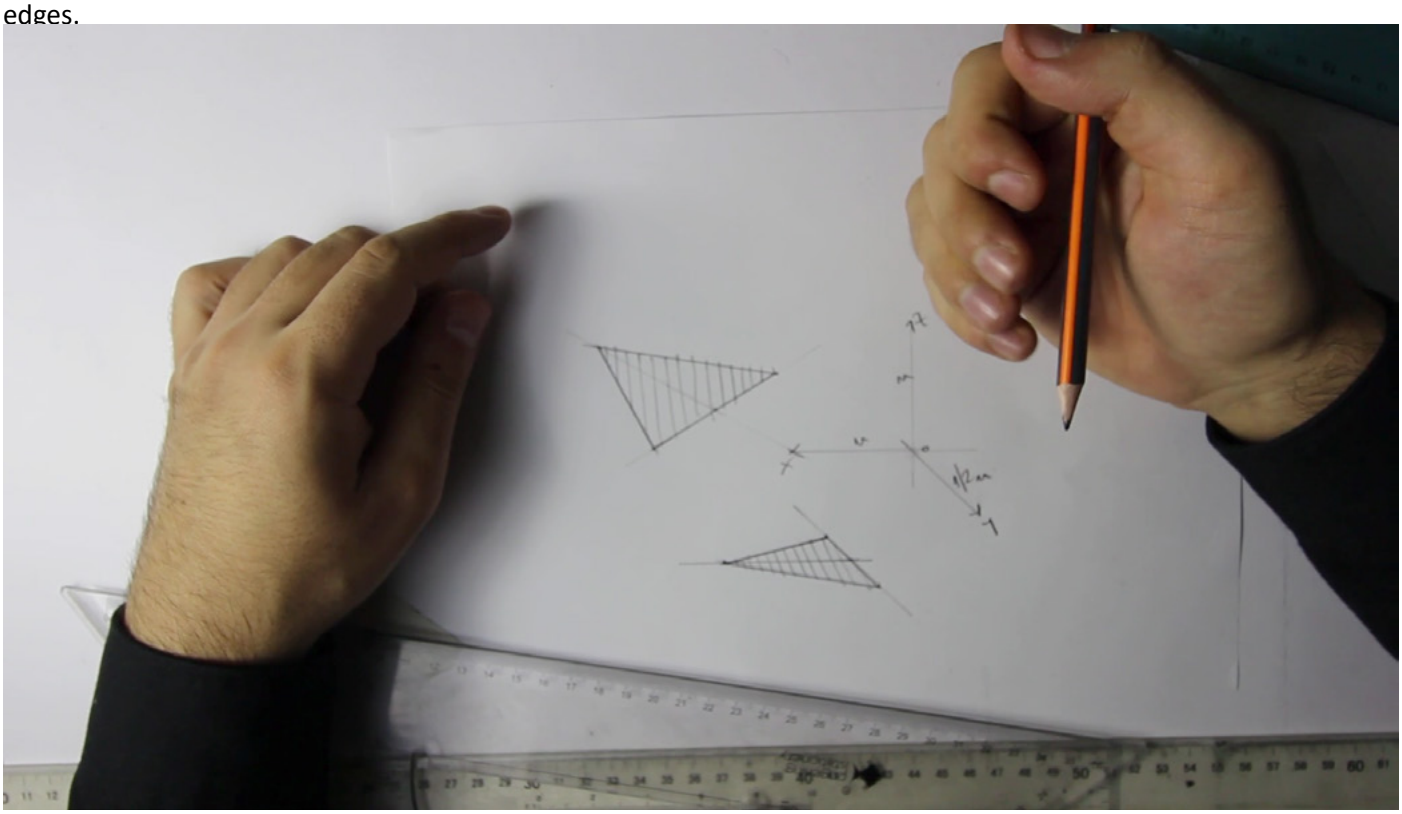


Connect that point to the vertical edge, and you got an equilateral triangle.

Equilateral Triangle In Axonometric

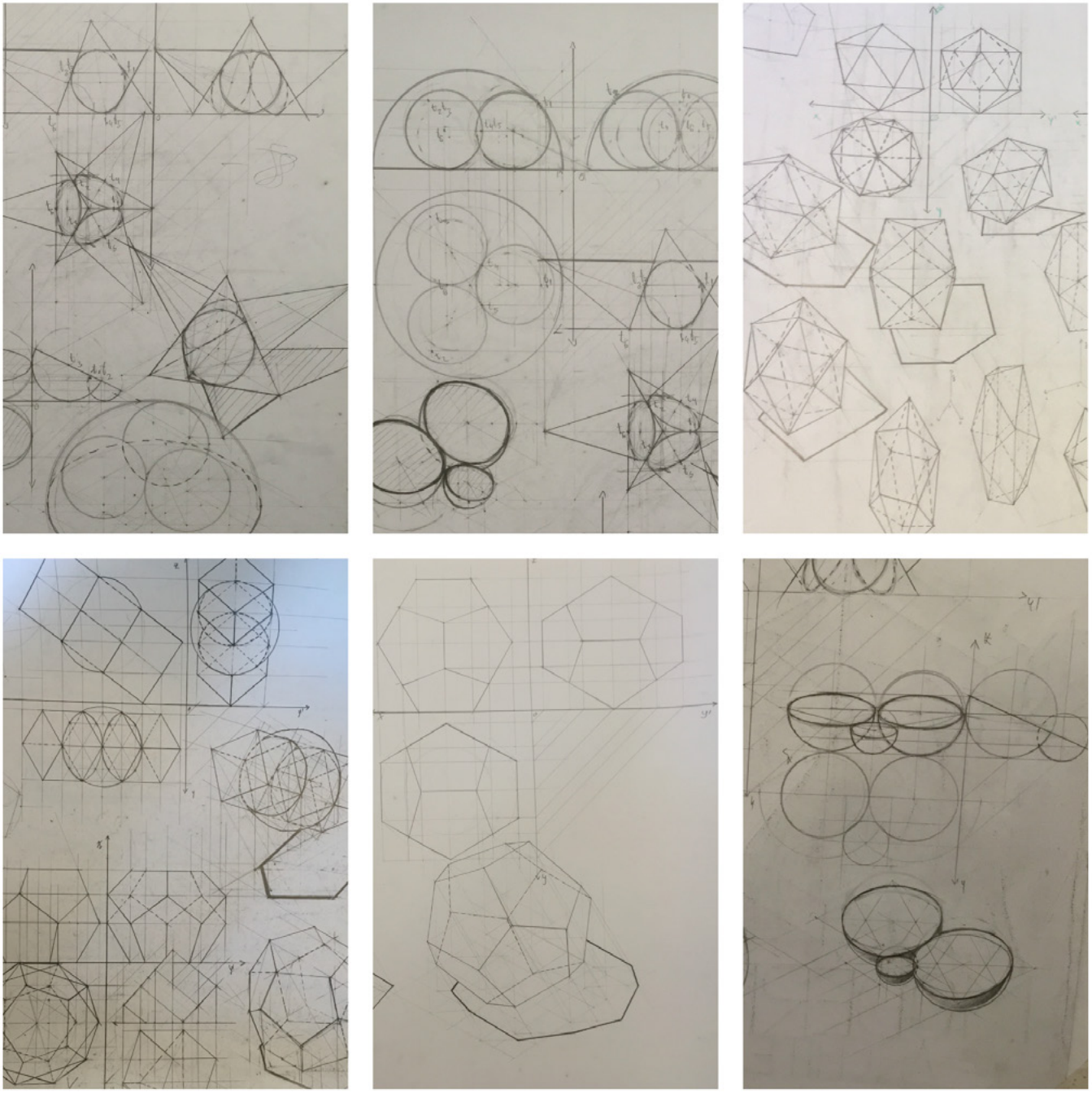
Drawing an equilateral triangle in axonometric might seem more complicated as the shape does not have all edges parallel to the coordinate system.

So the best way to draw a triangle is to first draw an edge, then the afferent height, then constructs the other two edges.



You first need to have the triangle constructed in a triple projection, then copy the length of the vertical edge and of the height in axonometric and then connect the three dots adjacent to get an even triangle.

Examples Of Students' Drawings



- Although it looks deformed, it is 100% correct - remember in axonometric any line that is not parallel to the projection system will look deformed.
- Descriptive geometry can branch out into many subjects - here are a couple of examples of different exercises you can be doing with simple volumes, range cues and different types of axonometric.
- The catch is that for descriptive geometry you need to 100% understand what you are drawing, so start with the basic stuff first.

Quiz

Name The Correct Three Types Of Axonometric:

- Isometric, cavalier, diametric.
- Isometric, orthographic, perspective.

How Do You Draw A Aine Which Isn't Parallel To The Coordinate In Planar Projection? How Do You Translate Into Axonometric?

- You construct the two points which form the tips of the segment – it is obviously going to look deformed because of the isometric indifferent drawing system, but it will be 100% correct.
- You just measure the line from planar view and copy it, no big deal.
- You guesstimate lines so it kind of looks right, if not it does not matter - nobody can measure the angles to check if it is correct.

Name The Mistakes:

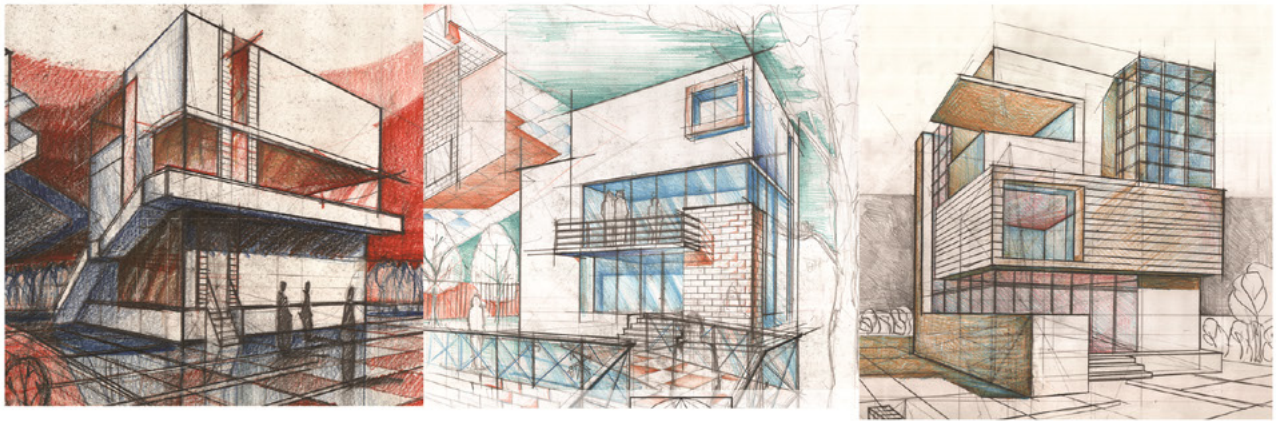
- Dimetric - the two perpendicular axes have the same units, the third one has half the unit.
- Cavalier - you mess up the 45-degree angle for the base because of not being careful when sliding the 45-degree-triangle.
- Dimetric - you draw a rotated square and it looks weird in dimetric, so you think it must obviously be a mistake.
- Cavalier - this is easiest for drawing the floor plane of a house, it is just a normal plane rotated at 45 degrees.
- Isometric - you aren't careful with the T-bar being steady so most of your parallel lines are not parallel.
- Isometric - you 'forget' that the angle between the axes is 120 degrees.

How Do You Draw An Even Triangle From Planar View To Isometric Axonometric?

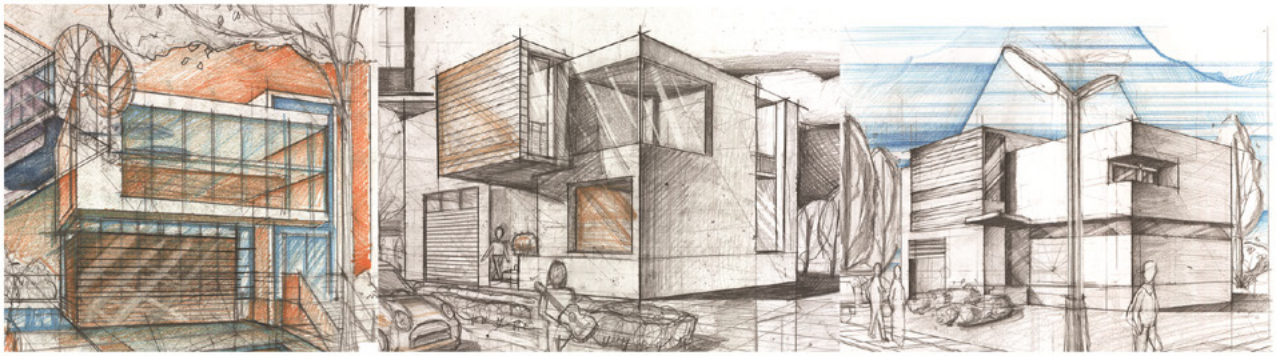
- You draw the base which is parallel to either Ox or Oy and then copy the height and then unite the end point of the height with the ends of the base segments and that is it.
- You just draw it, three lines that are measured evenly and that is enough- very simple, the measurements are 100% the same, the proportions as well.
- You can't draw it in triple projection if it is first drawn in axonometric.

Building Sketches

Cube House



Prism House



The images above show three examples for both a Cube House and a Prism House.
These are drawn with a copious amount of detailing as well as various entourage elements in both graphite and colored crayons.

Assignment: Choose one cube house and one prism house and draw each on a separate A3 sheet representing the drawing as close to the reference image as possible.

Key points:
- Draw all the back lines for your sketch and add all the spatial depth and detailing.
- Draw everything by hand first, then use a ruler to thicken contour lines.
- Follow the examples as full with detailing as possible - no shortcuts, no 'being creative' at this level.

ADVANCED DRAWING AND DESIGN

Lesson #3 Freehand Drawing 1.1 - Cube And Prism Building Sketches

Lesson Objectives:

- Understanding how to sculpt into 3d volumes correctly in perspective.
- Mixing both line drawing and hatching into a uniform, stable image.
- Mixing entourage, various graphic elements into a freehand sketch

Focus On:

- Focus on constructing the whole volumes with back lines as well (just like drawing always is)
- Get all the detailing in regarding sculpting volumes
- Sky and earth - always have a grind for the earth part, always have sky contrast for sky

Possible Mistakes:

- Starting off with a small drawing, then trying to distract attention from that by overusing entourage and graphics tricks
- Not sculpting in the detailing, but trying to paint the windows on
- Not making the overall image 3d enough

Lesson Introduction

- When you are starting off with freehand drawing, it is best that you focus on getting better skills in the drawing itself, and less on the creative ideas.
- Creative ideas and building on your own vision come after you can express yourself through regular drawing.

- Copy the reference material as good as you can - 'good artist copy, great artist steal.'

Each Sketch Is Done On An A3 Sheet!

Cube House Introduction

The cube house is a standard 10 x 10 x 10 m cube, so first, draw that in perspective.

We will divide the house in three floors with a one-meter elevated ground floor with a flat terraced roof.

That means 10 meters minus 1 meter for the elevated ground floor. Then minus 60 cm for the flat terrace, then divide that by 3.

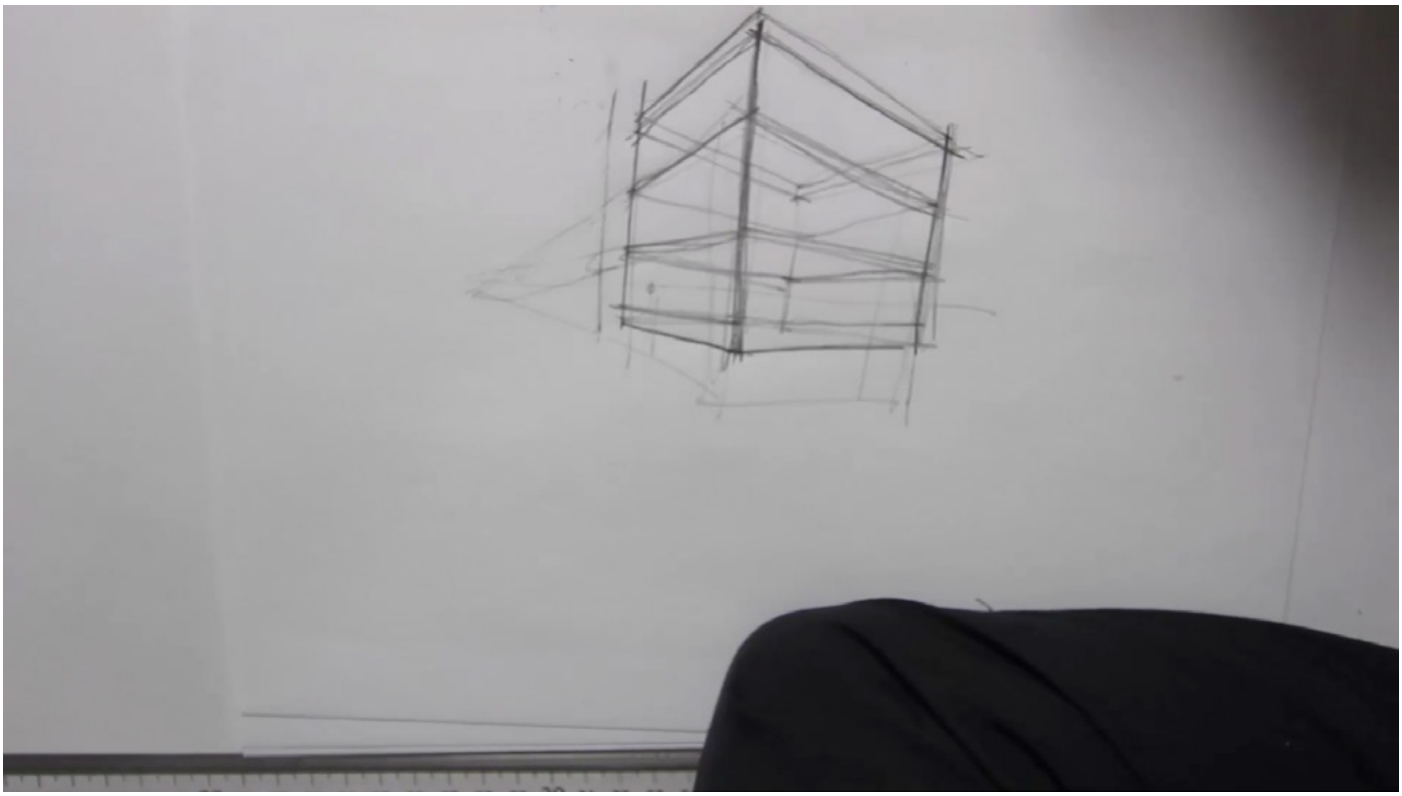
The resulting distance of 2,7 something also will have minus 20 cm for each floor slab.

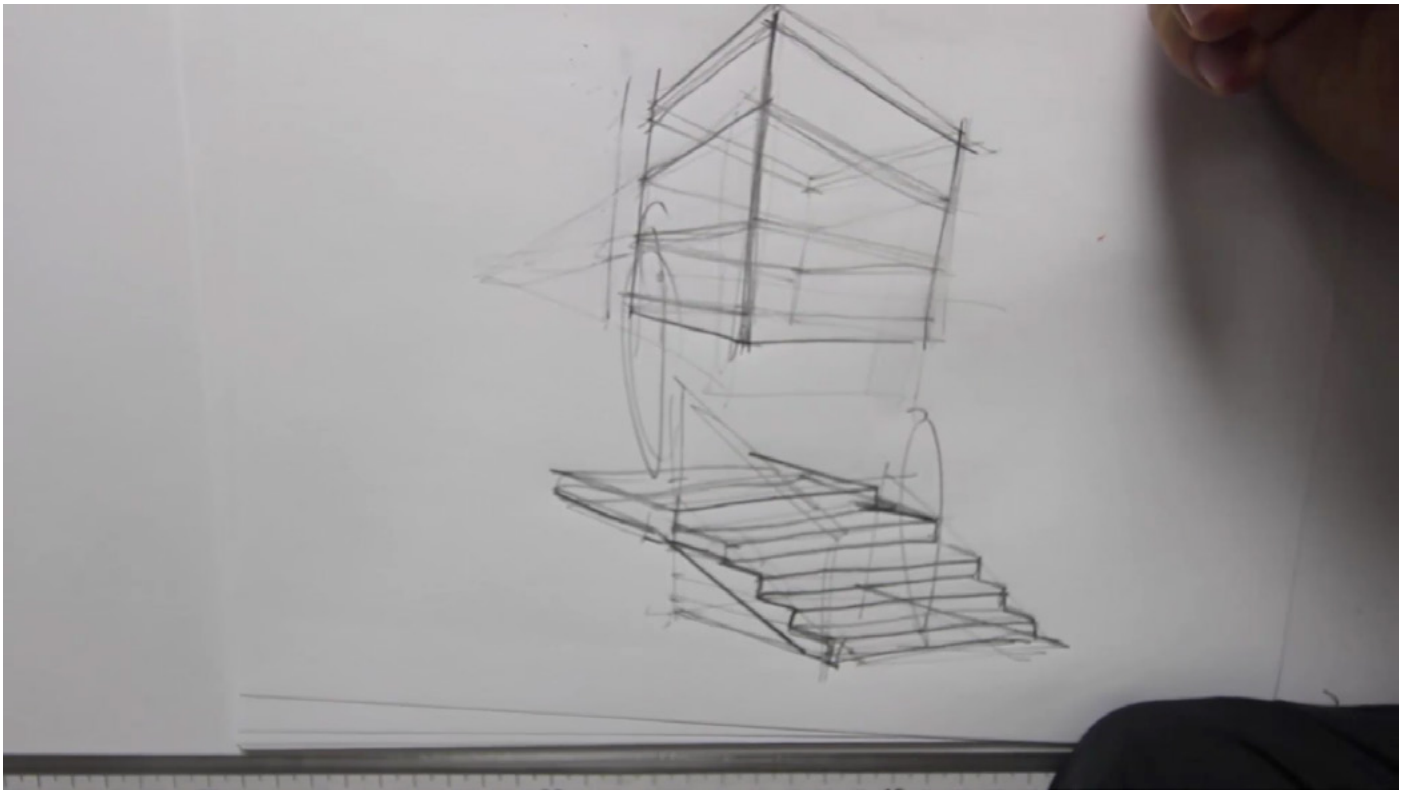
By doing this you are sure to get a sketch that is 100% anchored in real life - you will notice the difference in quality between this approach and everything else out there.

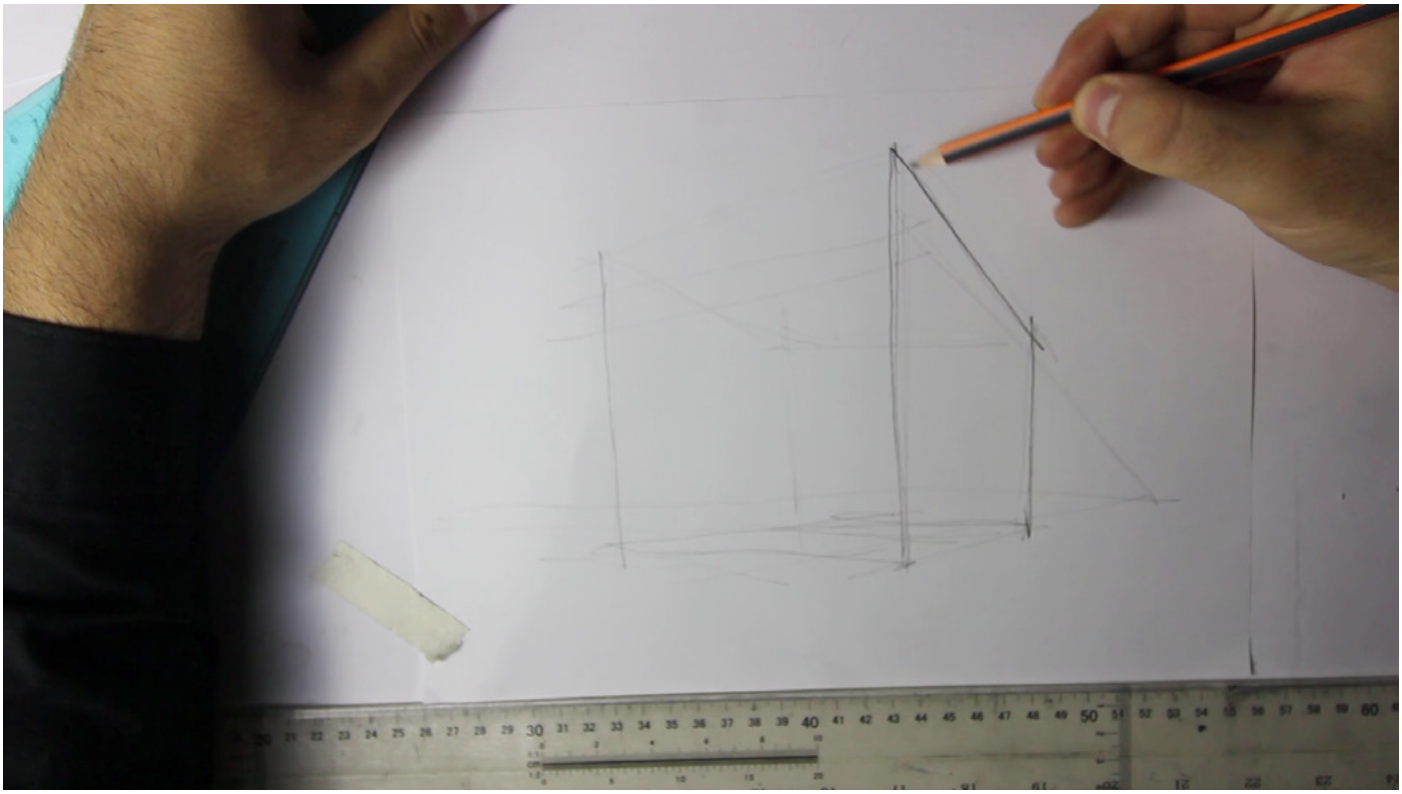
After all this is done, you can start drawing the details which make for a cube house - copy one of the references as accurately as possible.

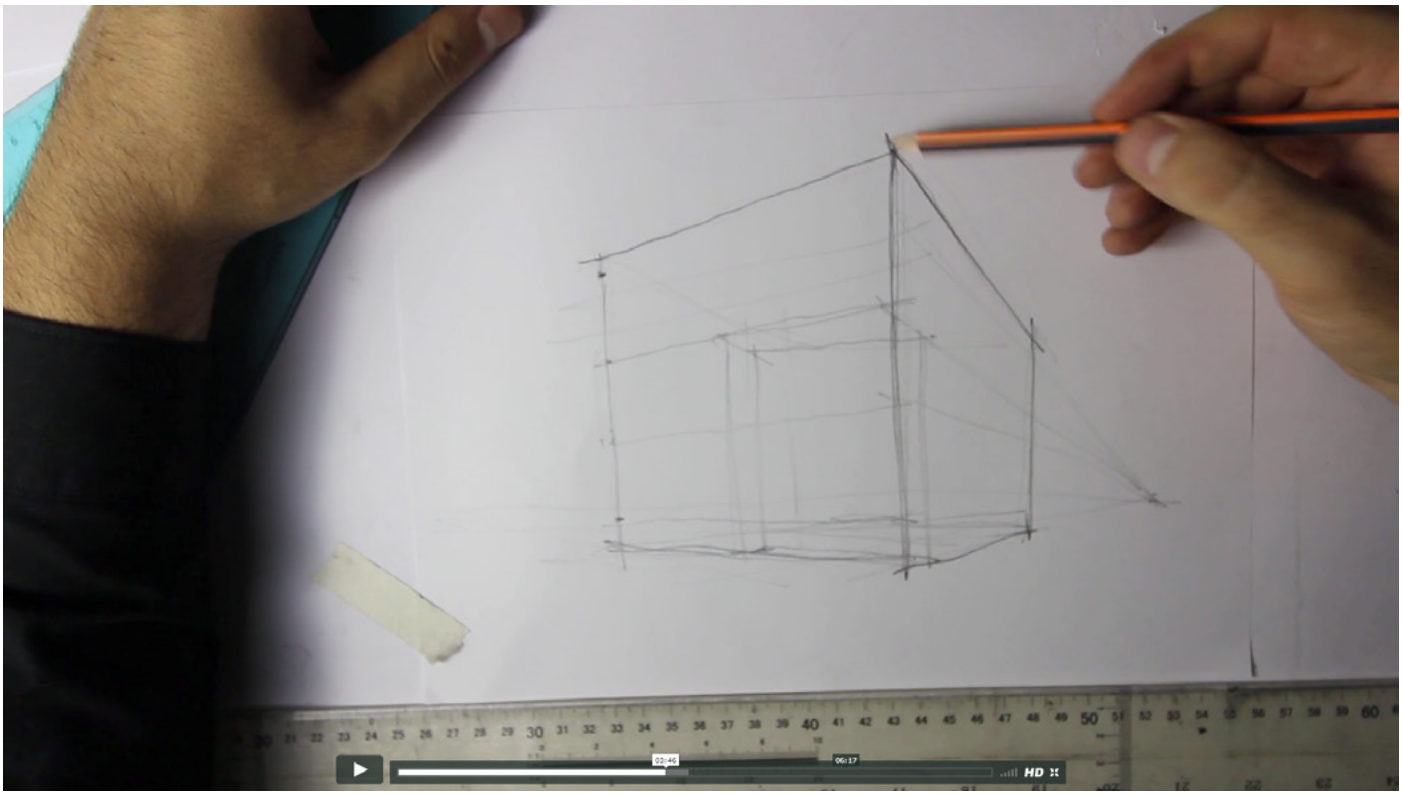
There is a catch to this - if we are talking about a cube house, then it means your final design needs to have proportions close to that of a cube.

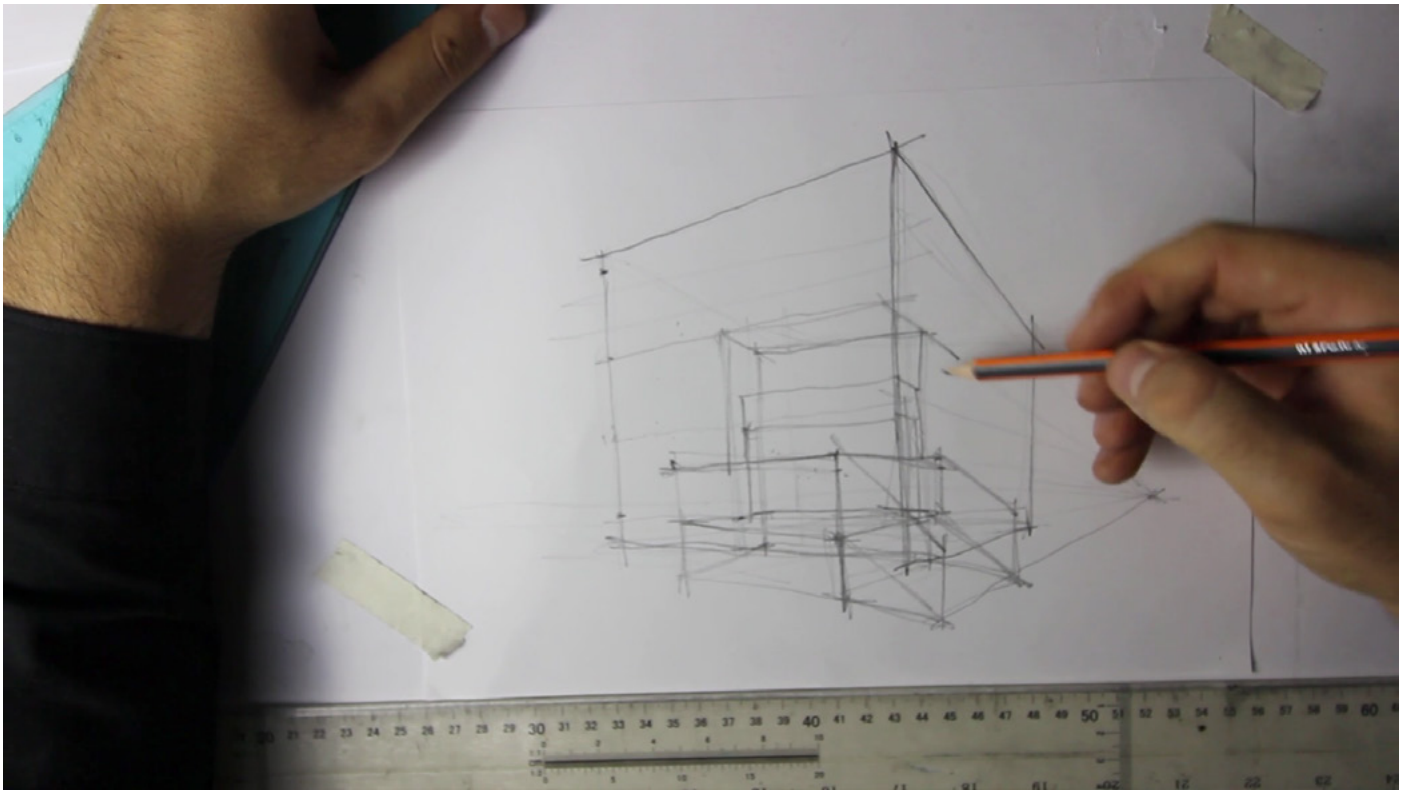
Double check for that - 'is the building looking bulky like a cube, or does it have too many cuts in it?'.

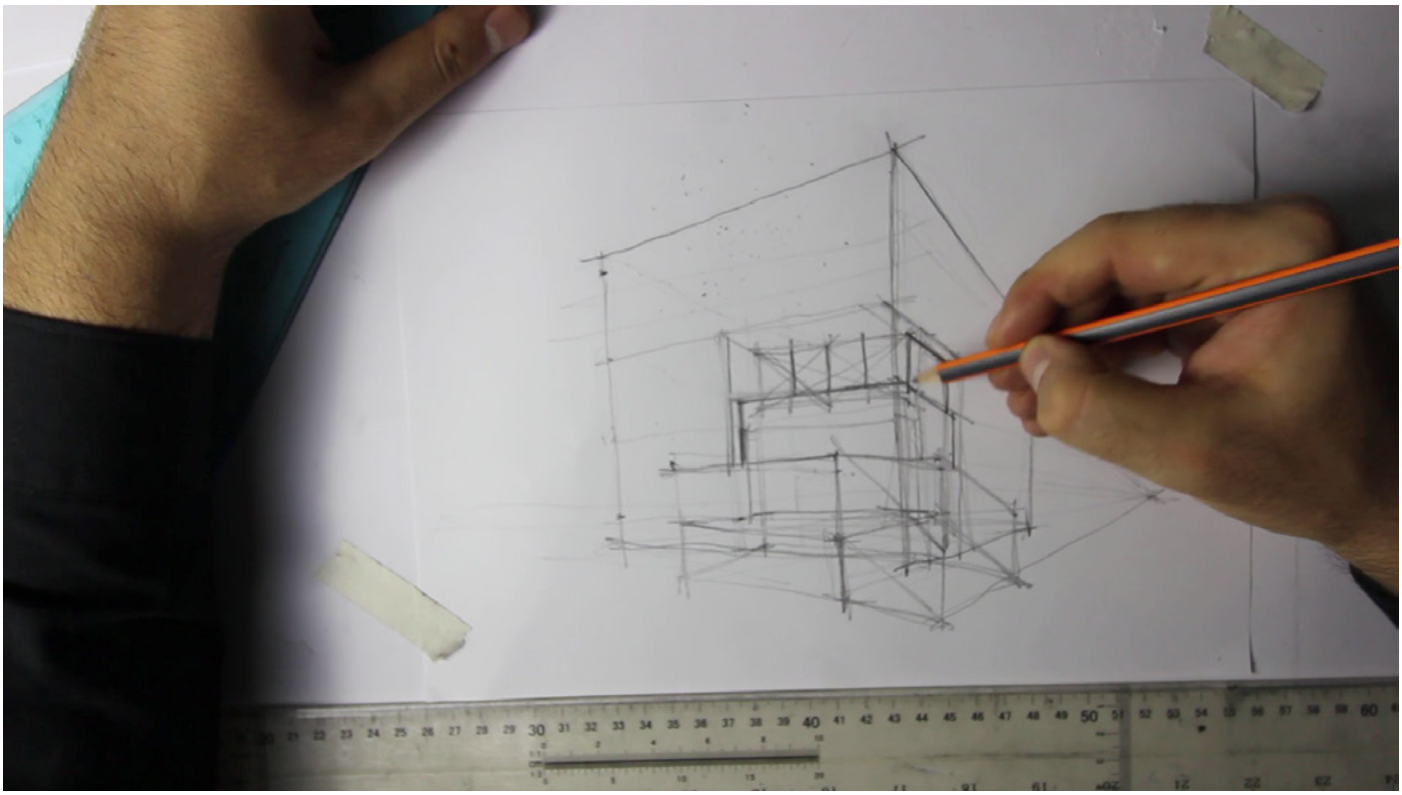


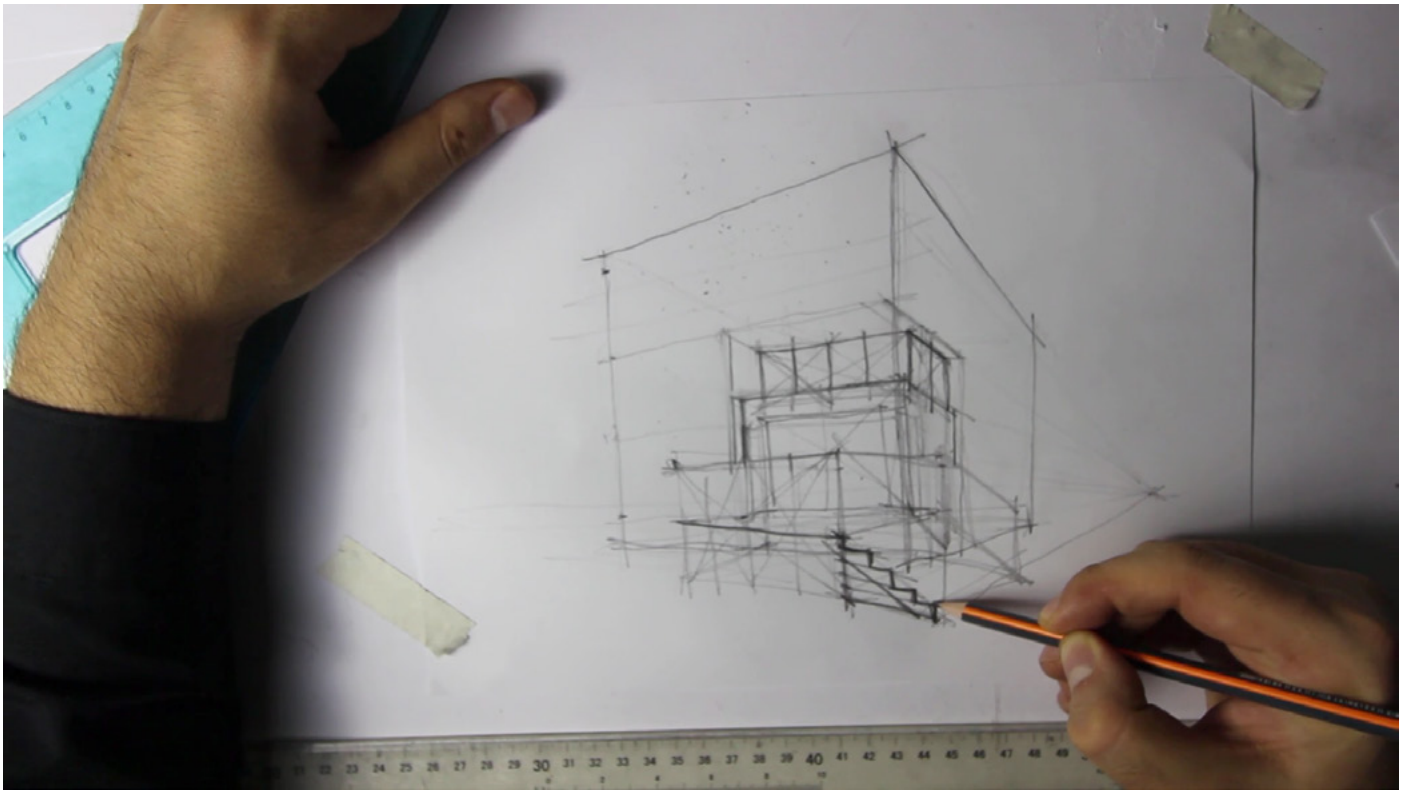


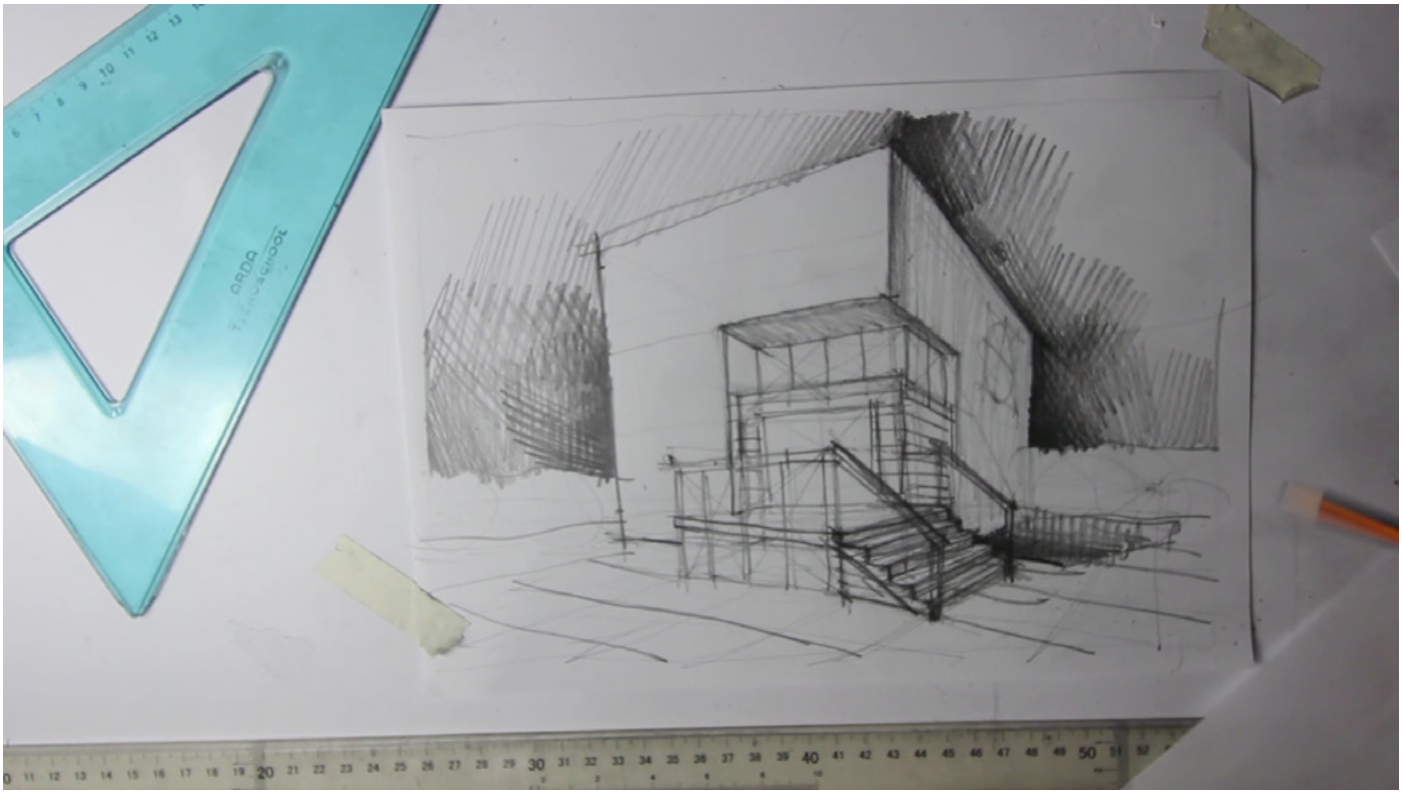


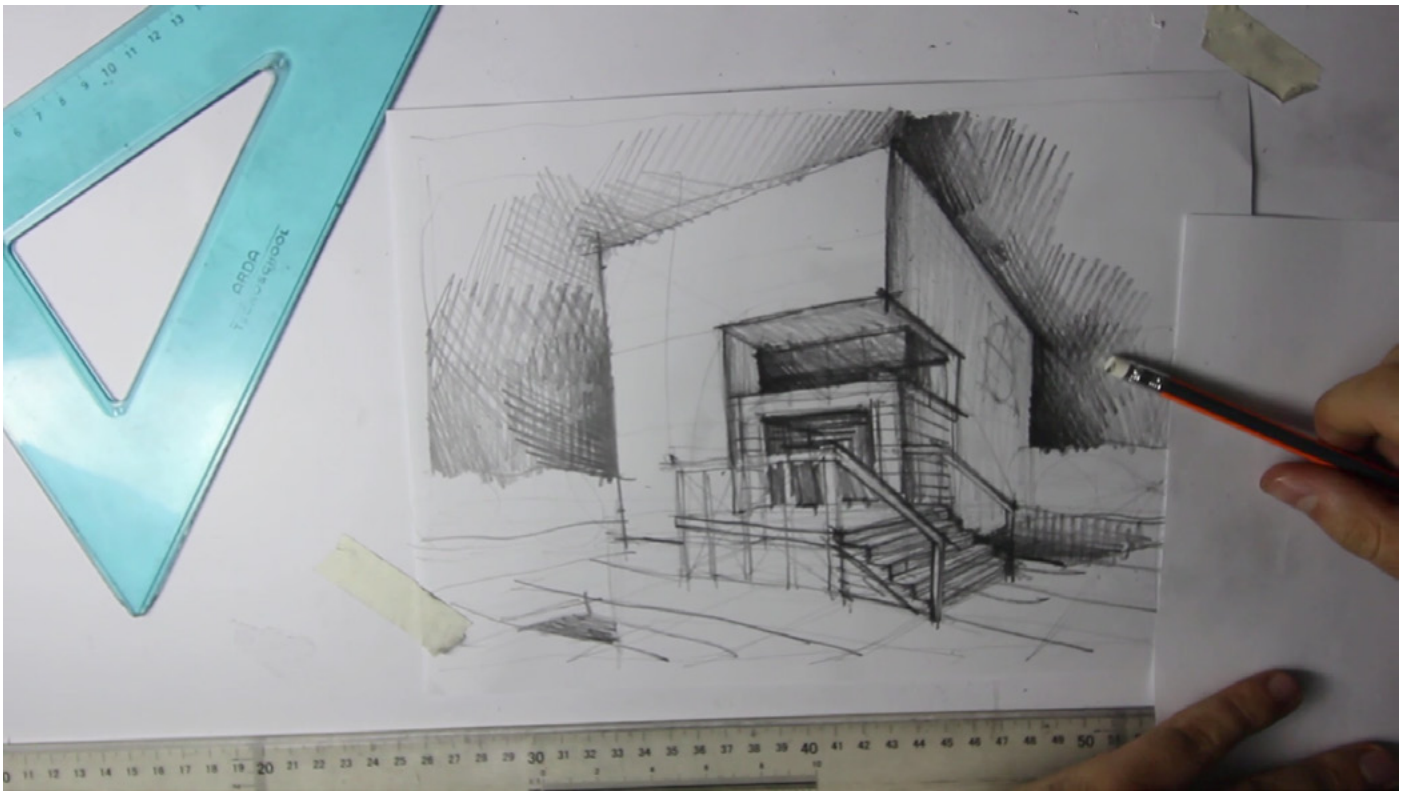






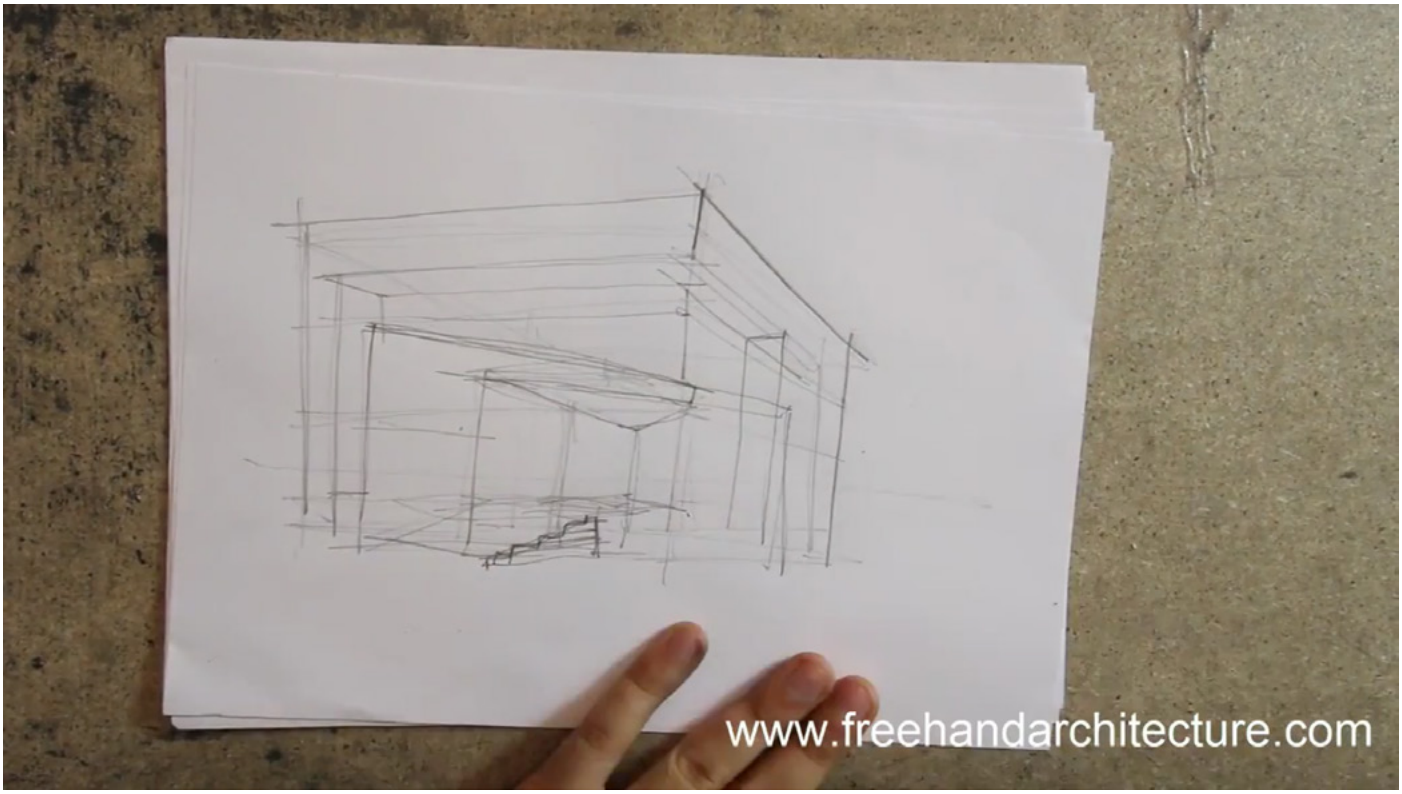




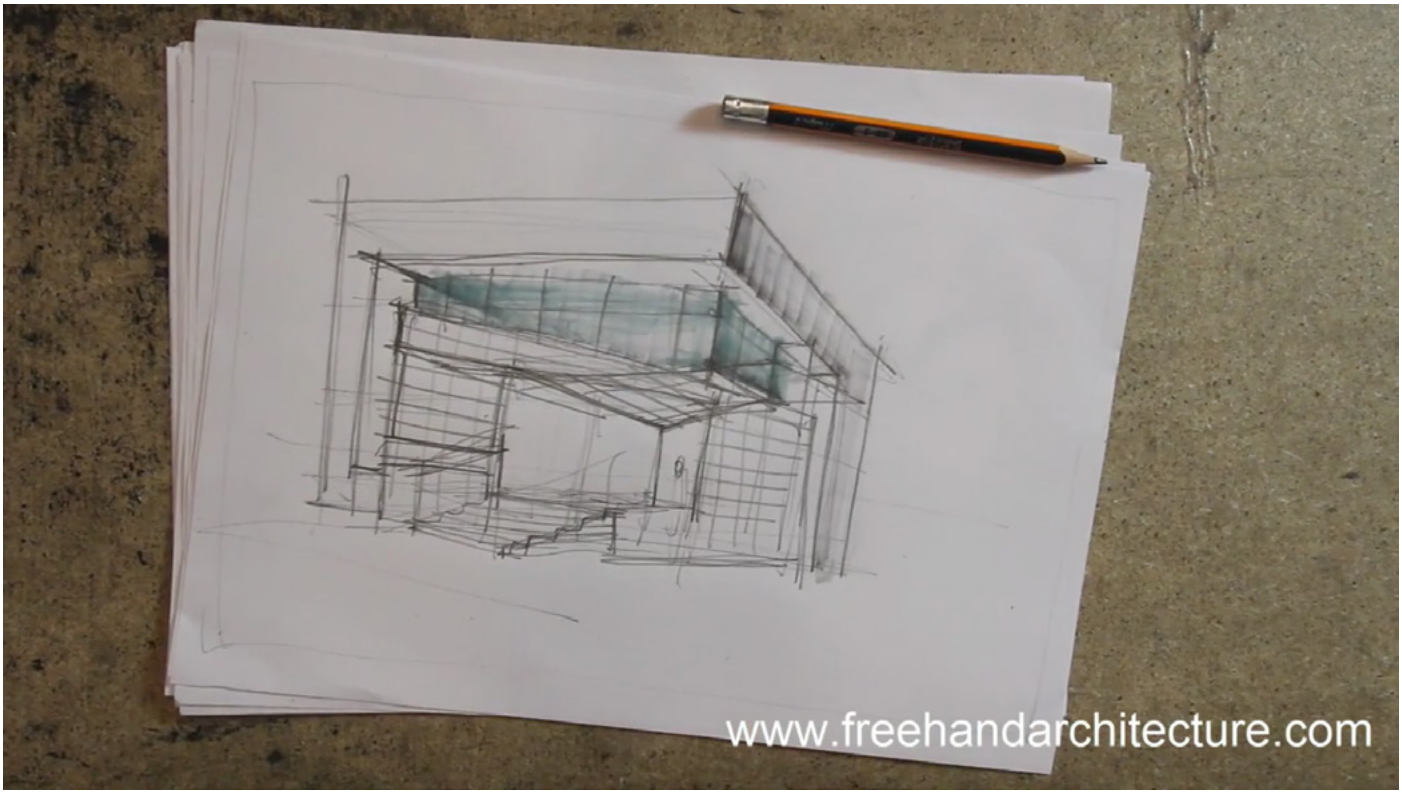


Prism House Sketch Introduction

The prism house is a variant on the cube house and features a 8 x 12 x 10-meter prism which has three floors, a raised ground floor and a terraced roof as well.

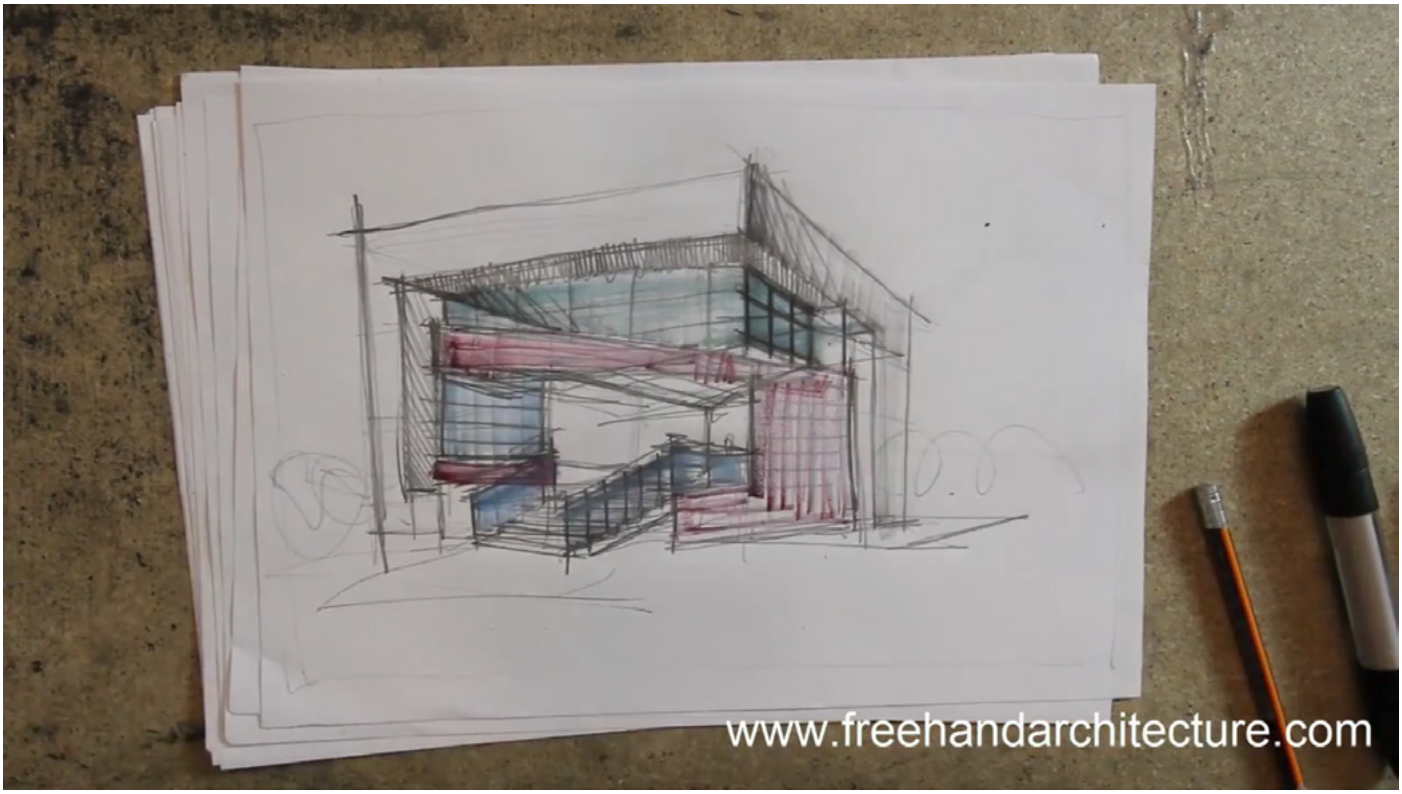


This time everything fits into a more relaxed volume, so if for a cube house our end goal is to create a building that suggests the proportions and volumetrics of a cube... the prism house is meant to just suggest a contemporary, modernist-based visual language.



For both exercises, we will be focusing on getting the drawing just right and leaving the designing part for a future lesson.

So again, the approach is the same as for the cube house - you just need to copy one of the references. Choose a drawing that you like and copy it.



Realistic Expectations

I want to remind you that the first three months of drawing lessons are all about getting fluent in drawing as fast as possible - so the priority becomes setting up a strong foundation for your future skills to grow and grow.

This part of drawing is the most complicated as it means you really need to focus on getting better without deviating too much with your own ideas.

Do not let your personality get in the way of you learning - you will grow much faster by focusing on following through with each lesson instead of picking and choosing what part of drawing you like or not,

Sketch Cube House

Again, you need to take the height of your building, subtract 1 meter for the base (the ground floor is 1 meter elevated from the ground), subtract 0,6 meters for the rooftop terrace, then you divide the remaining space by 3 to get the three levels.

If you want to add thickness to your floor slabs, then a 0,2 meter parallel horizontal lines should do the job.

Line Drawing - Construction And Contour Lines

To get the line drawing right you need to use a standard 2B pencil, then finish all construction lines of your volume, then go for the contour lines.

Get used to constructing all your volumes in 3d - add all the back lines, construct every detail of your drawing by relating it to the two perspectives points (of which one is on the page and the other off the page).

Also get used to drawing large drawings that will fill the entire A3 page, draw all construction lines by hand, even if they are faulty you can correct them as you move along.

Hatching

For hatching, we will be starting off with the shadowed faces and cast shadows.

On a side note, most hatching is all about shadowed faces and cast shadows anyway and about drawing material textures - always remind yourself when you are starting off with hatching.

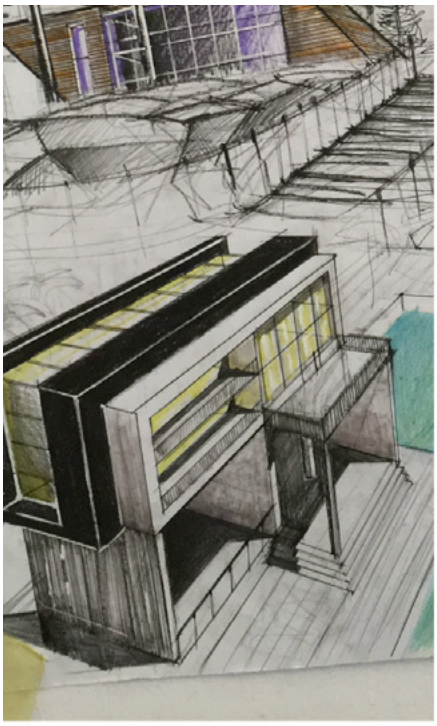
You need to first hatch the shadowed faces... which means you basically hatch the shorter face (the shorter face is in 90% of cases the shadowed face as it looks good and is also easier to finish)

The cast shadows are just standard constructed shadows - with a 60 degree and horizontal direction, so you just need to thicken the construction lines and add a 9-7 gradient.

Only when you have the cast shadows constructed should you go for hatching the cast shadows.

Never ever just start hatching shadows that are not constructed. You needto construct everything on your page, or your drawing will lose that intellectual depth that it needs.

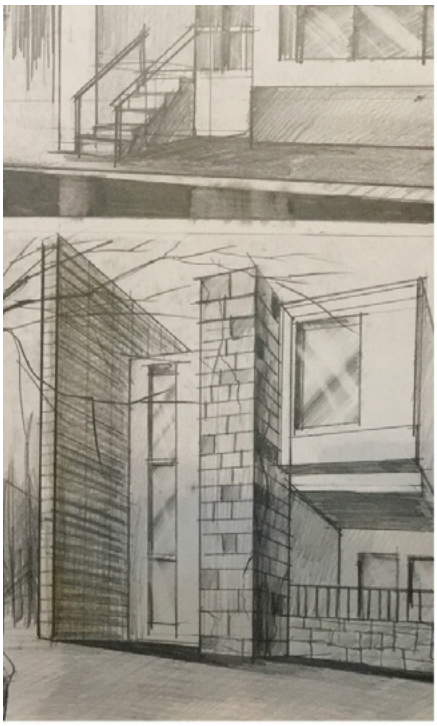
Examples Of Students' Drawings

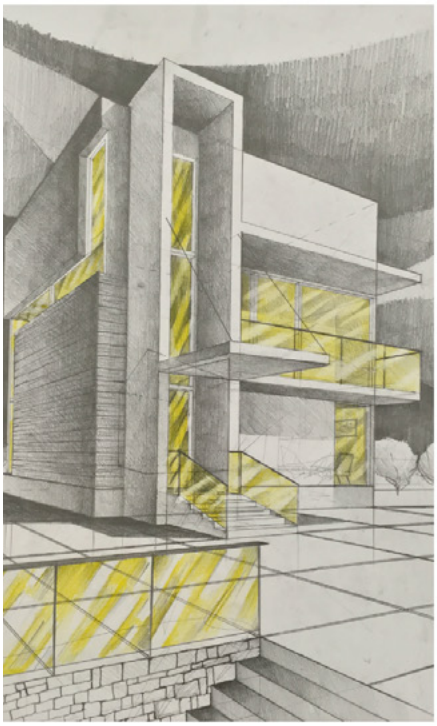


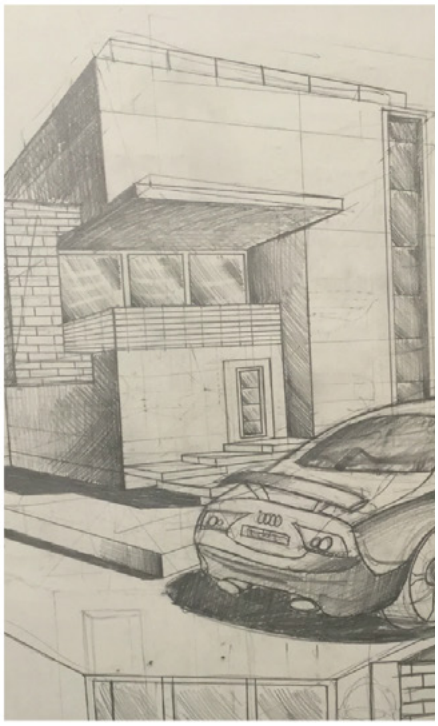



- These are relevant examples of box and prism houses from my students. You can see how far things can span out - starting from a simple box you can build up a completely original idea for your drawing

Examples Of Students' Drawings





- Again, the fundamentals are there to make everything click - 10 meter tall building with 1 meter off the ground, 3 levels and a flat roof that goes in 0.6 meters.

QUIZ

True Or False?

- You first do a thumbnail sketch of the house with divisions for the base, three levels and top level terrace and then fit your ideas on that framework.
- You just draw whatever house you like the way you would see it in real life.
- You draw the large prism or cube volume and then start sculpting in the details.
- Your ideas are 100% original, you should not stick to a technique or method to drawing and designing a house.
- Both perspective points need to be on the same page.
- Follow two of the reference materials in parallel, after all, you can come up with original ideas on the spot.
- Follow through with one reference all the way to the end so you understand it 100%.
- It is essential that you do not sketch the floors on the large drawing - these would get in the way of original new ideas and will get your mediocre quality work.
- Trees and shrubs cover up the horizon line and thus prevent perspective mistakes.
- Trees and shrubs should be drawn at line drawing level, the focus for this lesson is on the houses.
- The L-shaped alleyway works best for marking the entrance to the house, it should have tiles drawn on top of it.
- You need to draw everything perfect, so focus on hatching realistic entourage.
- Stairs work as a strong foreground as they give a rhythm to your drawing.
- Use whatever colouring technique you like - after all, it is your work and sticking to a method makes it unique.
- Follow a strict colour composition of complementary colours all the way to the end - 80% of one colour and 20% of the other color.
- Always hatch the cast shadows - this will make your drawings jump of the page.