Change your basement into a first-class Home Theater.

Page 1 - Design

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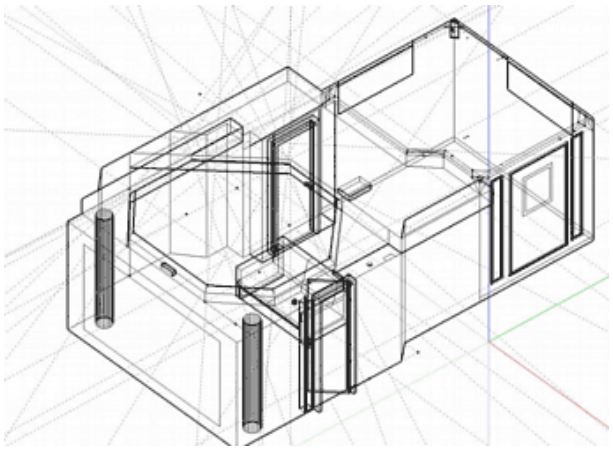
The basement doesn't have to be just a place to store boxes with things you are never going to use, but it can be used also as a great entertainment hideout. A home theater in basement is a really good match. The lack of sunlight and the isolation from outside life suddenly becomes an important asset.

I always wanted to have dedicated room for home theater for movies because I never watch TV. The whole idea to adjust my own time to the TV time is for me totally upside down. It is like getting a schedule from your doctor when you are allow to be sick.

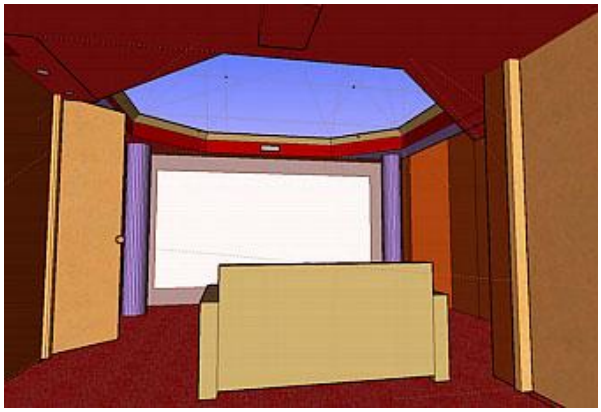
After taking some measurements and looking at the unfinished basement from every corner I decided to divide it and build a whole new room.

Being a computer geek, of course a first thing I did was took all measurements and enter it to a CAD system and then started building a "soft-version".
It is important to measure also all



pipes or other construction obstacles and build a room "around" them.

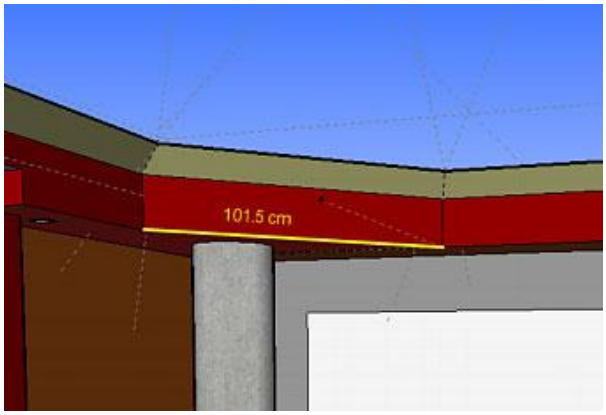
In my plans I created a rectangle room. First half will be the squarish cinema room with one wall used for a screen. The ceiling of this room will be inset hexagonal. This will not only look interesting but the created overhead will in fact cover all the furnaces and pipes in the basement ceiling. Also the sides of hexagon will be used as a cool ceiling light. The second part of the room will be used for archive of DVD's (and stack of chips...).



At this phase I also pick colors to see the whole feel of the room. I decided to go with a red carpet, brown walls and blue hexagonal ceiling which will be lighted by the sides of hexagon. I also picked places for other lights and place for the projector and speakers.

The walls will be covered with a red curtains not only for esthetic reasons, but also for pure acoustic.

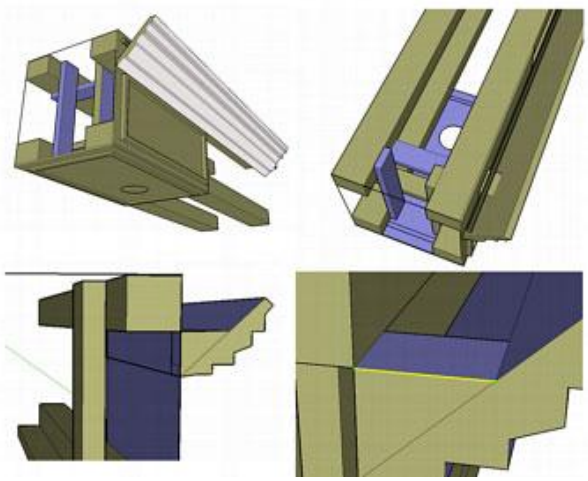
A two columns will surround the screen. This, together with the hexagonal ceiling will make the room look a lot bigger and more theater-like. You know, I wont settle just for a simple room.



Designing a room in a CAD system isn't just for the effect. Once the room is laid out I can get measures of any parts of the design and prepare materials.

For example when I will go to build my overhead for the ceiling I can simply measure the parts in software and buy and cut them to the exact size.

But I didn't stop just designing the "big" things. I went as far as designing the cabinets for



overhead down to the wood pieces I need to use.

This is a big help for somebody like me who has no great experience in carpentry. It certainly saves a lot of material especially when you build something which doesn't have right angles.

There are many CAD programs (many of them are too complex) or home designer software (many of them are too simple) which will help you in the designing.

In this illustrated guide I will show you all the steps I had to go through building a home theater in spring 2002 and also many tips and tricks.

Now the question is if I will be able to do it in real-life? Click the next page button to find out!

Change your basement into a first-class Home Theater.
Page 2 - The Gear - Projector

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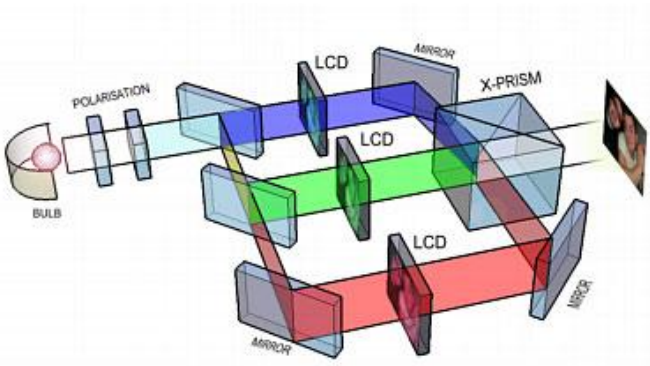
Before I start the actual building, the best is to know what gear I want to use and then eventually adjust the design of the room to accommodate this.

The Front Projector.
This is the single most expensive piece of gear for the home theater. For me there was no question: I want to use only a front projector (like in cinema) First of all, the overall result from a front projector (LCD or DLP) is much, much better than any rear projection TV's. Yes, it is looks expensive but it is definitely worth the money (and in fact it is cheaper inch-wise). If there is a stereo store near you which shows some home theater quality projectors in action (and I mean in a real home theater room with dimmed lights) then go and see it and you will be surprised how cinema-like it may look. You will never look at the heavy overpriced rear projection TV's again. With front projector you can have easily 100 inch screen and that looks magnificent.

So the real question is what type of front Projector I need.

LCD

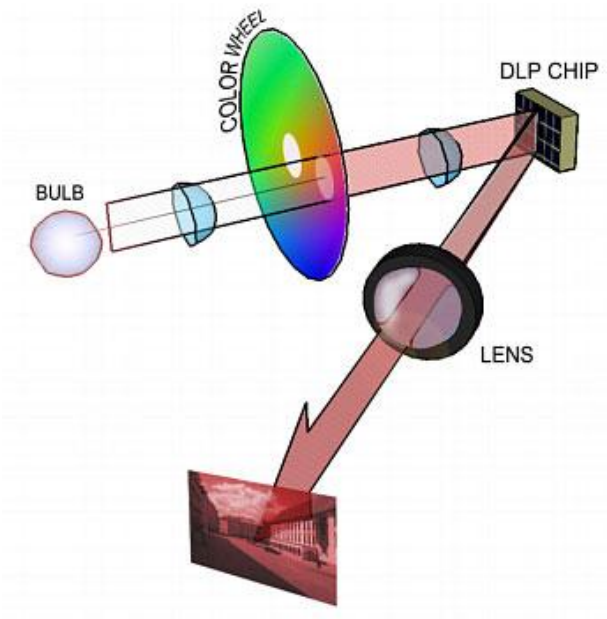


In the past LCD projectors were more common for business presentation rather than home theaters. They have quite strong light output which can be used even in just lightly dimmed room. However a downside of LCD is/was poor black contrast. Simple said, the black looks grayish. This is often compensated in home theaters by using a gray screen with negative gain.

This dims the brightness and at the same time makes black more dark. Other downside factor is that the LCD projectors have a bit larger space between pixels which may show as a fine black grid over the screen (screendoor effect). This of course depends on how far you are sitting from the screen - but it is there.
Note that too much of brightness can be also a downside in a dark rooms for movie watching and it also goes with bigger (and louder) cooling fan.

There are some quality and non expensive LCD projectors build for home theaters (with improved contrast and screendoor effects) for example Panasonic AE100 or PT-L300U

DLP



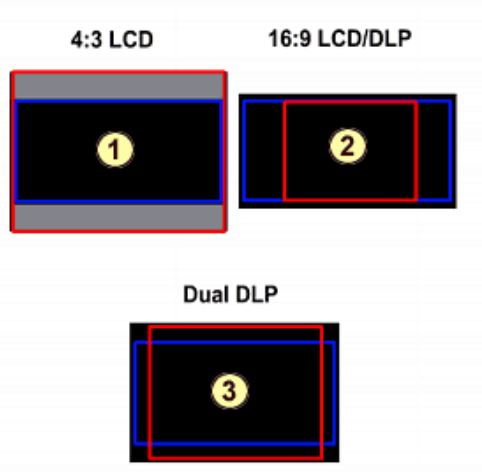
DLP projectors were especially build for a home theaters and digital cinemas. The commercial ones use just one chip with a tiny mirrors which reflects the light and a color wheel which quickly changes the color. DLP projectors have much better black contrast than LCD projectors, but the price is lower light output (brightness). Since the mirror-like pixels are much closer together the image has less visible grid than with LCD and generally the whole image is much more cinema-like.
The simpler mechanic makes also the projectors smaller, cheaper and quieter.

The first DLP generation used slower rotation of color wheel which could create

some color ringing or rainbow effect in fast scenes. (Have you ever look into a color scanner during scanning? The white light can sometimes produce this rainbow effect) You can read a lot about this on various web boards (mostly from LCD evangelists). However this has been fixed in next generation commercial DLP which used 2x faster rotation of the wheel. These days many new projectors use 4x or faster rotation of the color wheel which makes this problem non-existent.

A great non-expensive DLP projectors are made by Plus: Piano and also their new HE-3200 Avanti. If you have limited budget then a sub $1000 DLP projector InFocus X1 is a great performer.

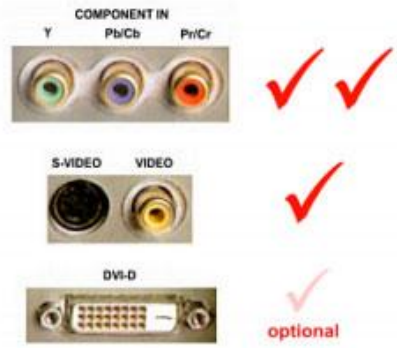
Important factors:



16:9 resolution
One of the most important feature for watching movies is the native 16:9 resolution of the projector. That means the projector has the LCD or DLP chip made with 16:9 ratio, not 4:3 as for presentations. On a presentation monitor a 16:9 movie will be fit into the 4:3 as in letterbox and you will have a black bars on top and bottom. This would be fine if they are really black, but with LCD projectors they are in fact gray and it is quite disturbing (1) You can get rid of it by masking a part of the screen with black curtain or board but this may not fit well into your room design. The true 16:9 projectors simply have no bars, the 16:9 is a native resolution and if you ever watch 4:3 movie it

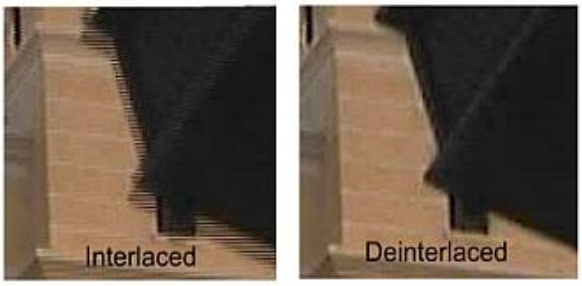
will be displayed as a rectangle in the middle with bars on left and right. (2) So all you need is a 16:9 screen because it never display anything outside 16:9 area. Some DLP projectors (Piano) have something called dual resolution (3). It is a rectangle created combination of booth 4:3 and 16:9. It is wide to fit 16:9 but also tall to fit 4:3 With DLP this can be done simply because the thinner bars on top and bottom during 16:9 films and the left and right bar during 4:3 are almost non visible because of the greater black contrast. For users with 16:9 screens the dual chip can be also switched to display the 4:3 image smaller, similar to (2)

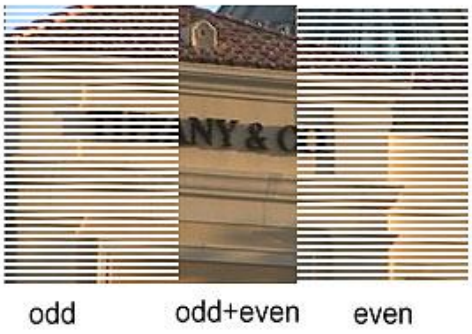
Connectivity

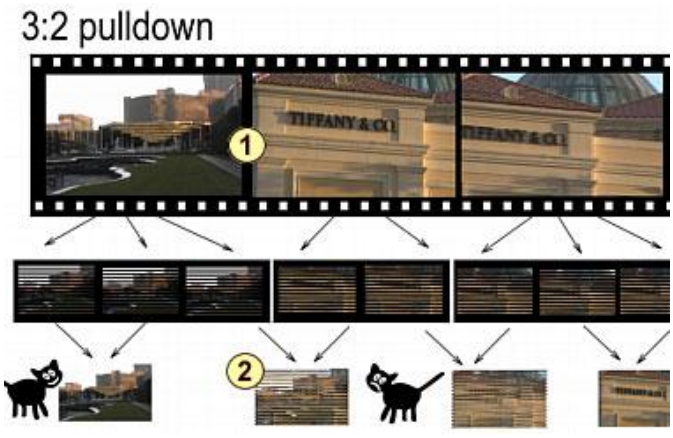


All projectors should have component video input. These are 3 RCA connectors usually colored as Red Green and Blue. This is what you will use for the best video quality from DVD. Don't touch any projector without it.
There are probably also S-Video and composite Video inputs. These may come handy if you want to plug a VCR, but the quality really goes down.
Some have also a digital input DVI-D which can be then used with a PC with digital monitor output for a superior quality from PC.

Resolution: For a DVD quality you need 720/480. Some projectors accept only 720/480i (interlaced, it can be used with any DVD player) and some also 720/480p (progressive, it can be used with Progressive DVD player).







If you are planning to use the projector for High Definition TV programs then you would want to go for projector capable to work with this type of signal. But don't get confused reading specs: unless the LCD/DLP chip has a true High definition resolution (only more expensive have) this will not bring you better quality, it is just more convenient

Since the projectors unlike TV is a native **progressive** device, any input interlaced signal has to be converted to progressive inside the projector. A salesman would tell you that it is better to use progressive DVD player and progressive input in projector, but in real life this may not be true.

Here is a **secret** the salesman doesn't even know:

Because films on DVD are stored in 24 progressive frames per second an then to keep it with the 30 fps of NTSC the **normal DVD** player has to apply so called 3:2 pulldown. This splits every 24fps frame into two interlaced fields (48 half frames per sec) and then add additional field for every other frame. (which adds 12 half-frames per second which gives the needed 60 half-frames or 30 full frames per second) So the result is: two fileds of one film-frame then three fields of second film-frame, then again two fields of third film-frame etc... Obviously because of the new 3-2-3-2-3 fields the TV display some frames where even lines are from film-frame A but odd lines already from film-frame B as in the image on left marked

by (2). On fast scenes or cuts (1) this may create jagginess. That's still considered a normal knowledge even between salesmans.

Now yo would say, since a DVD film is already progressive, the progressive DVD player can just read these frames as they are without interlacing and then convert them to 29.97 fps. But, here is the secret: The progressive players don't do this. They do all the stuff with interlacing as the normal players above. What you pay your big bucks is the **video processor** which takes these now interlaced frames and create progressive output by again deinterlacing them. Funny, isn't it?

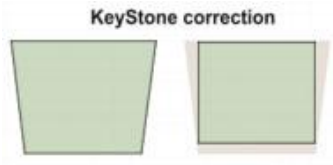
But with the deinterlacing you are not simply merging every two half-frames (img 2) as on TV (this will create the same jaginnes on certain frames) but you use various interpolating and scene detection techniques to determine which half frames to merge, which ignore and which to duplicate. Now obviously not every deinterlacers are build with the same logic and processing, there are bad ones, average and a good ones.

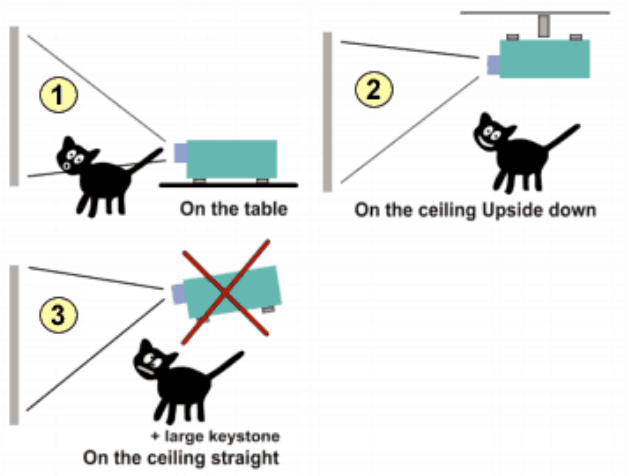
And this is the whole story. Since the home theater projectors doesn't display the picture in interlaced way, they have build-in deinterlacers. Because the bad interpolating and jaginnes would be quite visible on big screen, often they have **very good** deinterlacers. For example Plus Piano uses Silicon

Image, which is the butter in this class.

The bottom line: The progressive DVD players do the "progressive" trick by deinterlacing the signal not by directly using progressive data from DVD. However unless you have first class (read expensive) progressive DVD player the deinterlacer in a good home theater projector (Piano) may does a better job as many of normal progressive players. Even the argument that the deinterlacing in projector is from analog signal while deinterlacing in DVD is from digital doesn't seems to affect this reality.

Other less obvious things to look for





- **Noise** from fan. Some can be really quiet (PLUS Piano) and some can be disturbingly noisy
- **Keystone correction** - optical or digital. All projectors should have at least digital vertical keystone correction. Since you can't always put the projector to the exact height from where the image is projected straight, keystone setting will correct this. Optical is the best for quality. The digital keystone correction will disort the image so it appear straight - but this has various unpleasant effects on the image. It is recommended to build your theater such way so the projector can be used without keystone either from table or upside down from ceiling.
- Ability to **work upside down** from the ceiling. Many good projectors have anamorphic optics, so the image is straight not when the projector is positioned in

middle of screen (like slide projectors or an old film projectors) but when the projector is close to bottom part of screen. This allows to have the projector on a table (1) or work upside down from ceiling (2) (you can change the image rotation in setup). The upside down from ceiling is obviously the best position for permanent setup. Before you buy projector you have to ask if it can work upside down and if there is available ceiling mount.
Some people put the projector close to the ceiling but straight (3). Then they need to tilt it and also adjust the keystone correction almost to the max. This is obviously the worst position quality-wise, unless the projector has a rare optical keystone correction.
- Optical **Zoom** is a plus but may be not so important if you are going to permanently mount the projector. Simply choose the place for mount so the image fills the screen and you never need to touch it again. But of course zoom makes setting easier.
- Life of the Lamp. The lamps in the projectors has to be changed after a number of hours of usage. This is usually from 1000 - 3000 hours. The lamps are expensive, so check the price. Average price for new lamp is about $300 but sometimes they can be even $1000 - so check this before you buy the projector. Here is one warning - don't fall for a large lamp life written in the specs. Some manufacturers put 5000-6000 hours but it is often measured when there is just 20% of the original bulb intensity left. Normally it

should be measured when there is still 50% intensity which in most projectors will be about 2000 hours. That also means in about 1500 hours you would really wish to change the lamp. Or put it other way: If you watch daily 2 hours, after 2 years you would need to change the lamp.

LCD or DLP?

Everyone taste is different. Some people prefer a bright picture of LCD, some likes more cinema feel of DLP. If you go to various web boards you will see a totally different opinion. The best is if you can try few of them, either in a test room or better in your home.
Be prepared to test your own DVD because the stores obviously show just a big bright movie which will look good on anything. I tested my projectors on a particularly difficult movie "The Age of Innocence". There are many dark scenes in the film and after trying few projectors I personally must confess that DLP simply looks best to all my tastes. A very well balanced light and contrast even on a dark scenes of the film.
My advice is: if your primary goal is to watch movies in a dark room, then get DLP, if you are going to use the projector besides watching movies also for presentations or playing games consider LCD.

For my cinema I got Plus Piano and I am always surprised how good the picture is even on a difficult movies. And it is also very quiet projector.

TIP: Good thing to buy for your projector

Here is one trick which will save you a lot of lamp life:

Buy an UPS (backup power supply) used for computers in any computer store. This may cost about $50-$100 but it is worth the price. A single power shortage while watching can destroy your lamp or at least shorten drastically its life. With UPS you can still switch the projector off correctly (letting the fan cool down the lamp)

PREV NEXT

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Change your basement into a first-class Home Theater.
Page 3 - The Gear continue - Screen and the chair

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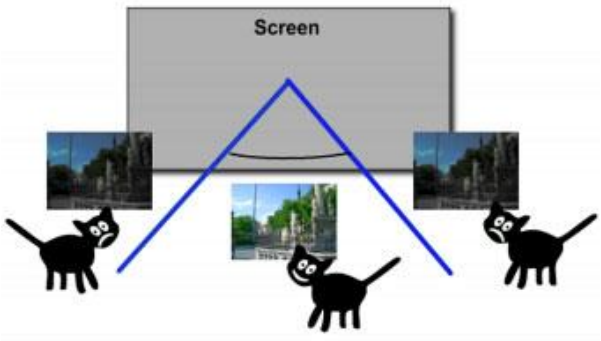
Let's continue with choosing the gear for our home theater....

Screen



Gray screen | White screen

Good **screens** are expensive. A screen is not just a piece of cloth, but quite sophisticated material with controlled gain (reflectivity) and angle of reflection. So if you want a good screen, be prepared to pay for it few thousands of your bucks. There can be hundred different screens to choose from. For home theater the most common are with gain from 1.1 to 1.5 but you can find also screens with gain 0.9. The screens with gain <=1.0 are mostly gray screens used for LCD projectors, the gain >1.0 (gray or white) is used for DLP as well as for LCD. Higher is the gain, the smaller is the viewable angle.
Screens with gain above 1.5 are more suitable for presentations than home theater.

Gray screens are very popular these days because they lower the black point and make the image appear with more contrast. They are also made with gain > 1.0 which can be suitable for DLP projectors.

If you buy a screen, the best advice is to take the advice of professionals. Da-Lite are very popular brand of projection screens.

The good thing is that you can buy your screen later (they are on order in various sizes). Many people are starting with projection on home made screens. They can be created from various building materials or simply on a matte painted drywall. This specially painted wall is probably the most cost effective way and you can still get good results (although always with gain < 1.0).
If you are going to use your wall for screen make sure it is perfectly flat and free of any imperfections. You can use fine sandpaper to flat the wall. Then you will need to paint it. Depending on the wall you will need to first prime it with white quality prime. The final paint is made with the quality most matte paint you can find in department store which is normally used only for ceilings. With good painted wall you can get better result than with cheap low-quality projection screen.

Tip:

For best view you should sit in a distance equal 2 times the screen width.

Receiver, speakers and DVD player

Any good salesman can give you better advice, but here are few things you should consider:

Receiver:
- you don't need receiver with too high power output. In a normal room you will still use it in low or mid volume since the movies are recorded with much higher dynamic range, than a normal music
- see if the receiver has the important decoders: Dolby Digital (must have), DTS (for DTS movies). Especially the "Digital" word is important which means you can connect the DVD and

receiver using optical or coaxial cable. A normal Dolby Surround receivers are analog.
- if bundled with speakers choose the one which has active (powered) sub woofer
- don't buy receiver with build-in DVD

DVD
- on a projected big screen the quality of DVD decoder is suddenly very important. A brand name DVD and some cheap Asian brand will show quite difference in sharpness, color and overall feel which is not noticable on a TV.
- must have component video out (3 RCA connectors rgb)
- must have either coaxial or optical digital output (or both) same as your receiver input (some receivers have only optical so watch out)
- it is good if it has a video equalizer build in (JVC) You can manually set sharpness, color, gamma, but it is not necessary, (the projector has often similar settings)
- a progressive DVD player may not be necessary better - see the previous page for explanation
- what is necessary is so called "**cinema mode**". A normal TV black is not black but a bit brighter (such as RGB(7,7,7)). Many better DVD players have a movie or cinema mode where the color is stretched to full dynamic range, the black will become RGB(0,0,0) and the dark will become darker while the lights will stay bright. This is important to have for projector. **Warning**: Some brands (I think Panasonic) however may this very confusing. Their "movie" mode will make darks actually brighter! (The meaning is to able to watch a dark details of some noire movies on a TV)
So what you need is a setting (whatever it is called), which when used will make the blacks darker. Mid-class DVD players such Sony, JVC, Pioneer or Toshiba usually

have this type of setting or "program mode".
The DVD players are competing in number of useless features, but what really counts is the ability to play DVD without glitches or stops and the quality of image. Things which are optional but you would probably never use them in your home theater are: MP3 playback (listening mp3's in your home cinema, how much time do you have?), JPEG playback (it is usually very slow), VCD playback (on a big screen this is a pain to watch), SVCD playback (handy, but the quality on a big screen is visibly lower than DVD, especially because of the lack off anamorphic 16:9 mode where SVCD has it letterboxed - thus in fact smaller than 4:3 full screen)

Cables:
- don't try to save on cables. Buy a quality thick cables and you won't need to replace them.

The rest of the gear

A lazy boy chairs are the best supplemental item for your pleasure :-) It is better idea than a sofa since it can be reclined and has a leg support.....

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Page 4 - Building the room

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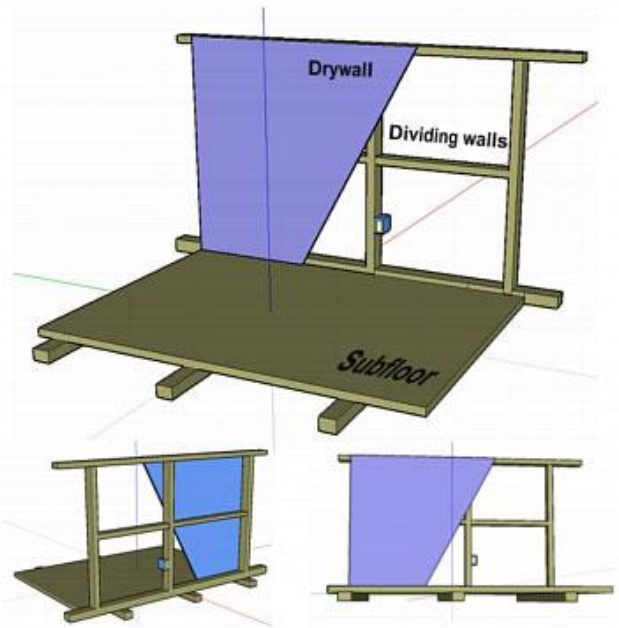
Lets get back to our basement....

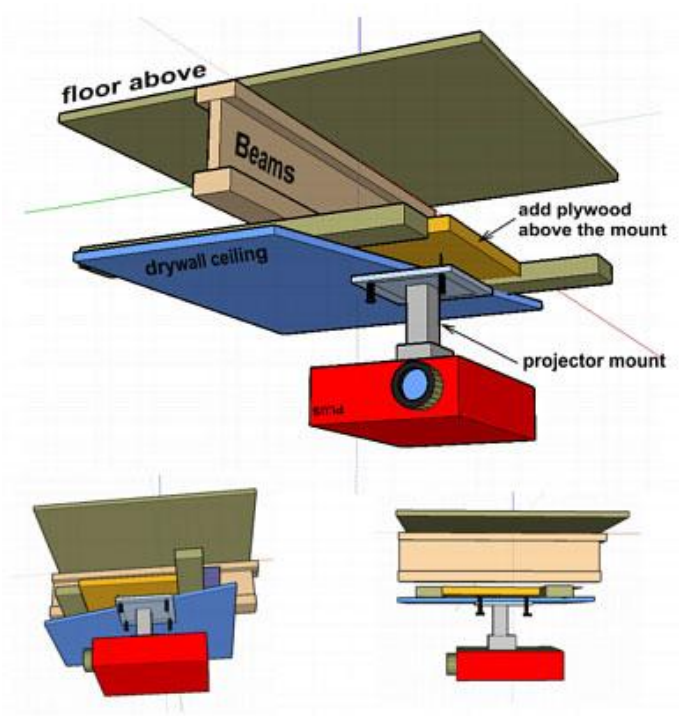
Building the walls



Here is a good advice. Left the heavy and difficult stuff for a professional contractors. This include building subfloor, putting up dividing walls, electric, drywall, trims etc.. The professional contractor make this about hundred times faster, with less personal injuries and in fact also a cheaper since he will have far less material loss. In fact a good contractor can have your room ready in about a week.

On this page you will find a few steps which needs to be done building a brand new room in basement.

First thing you have to decide is where to put dividing walls, if your basement is unfinished. Then tell the contractor where you want the electrical boxes and lights. A subfloor is a great idea, it



makes the room warmer and also in case of eventual small flood in the basement the carpet is still few inches above the concrete.

Before contractor puts up the drywall, put any cables or special boxes you want for video and audio cables. Put more cables than you need, for example put 2 video cables instead of just one in case of problems.

Put an extra isolation material where the wall touch the basement concrete.

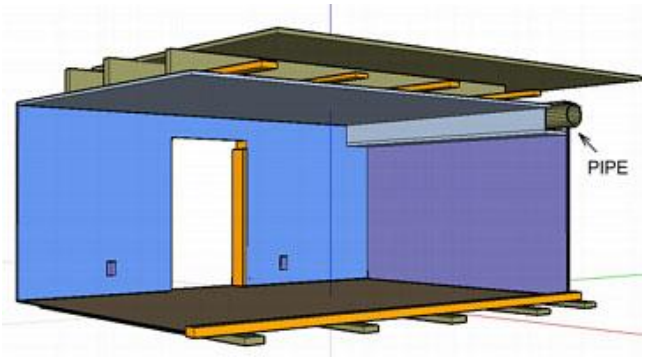
If you are mounting your projector on a ceiling, let the contractor build a strong plywood on the ceiling above the projector for the mount support before he puts a drywall on the ceiling. You will then use long screws through the drywall to the plywood to hold the mount and projector.

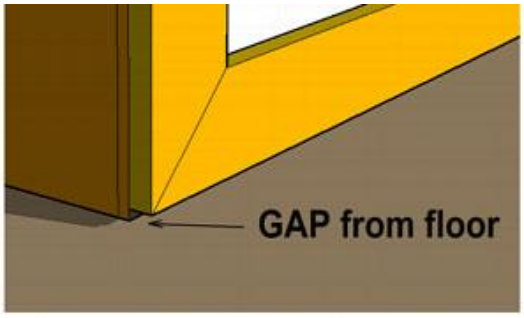
Add an electrical box and cables near the projector on the ceiling.

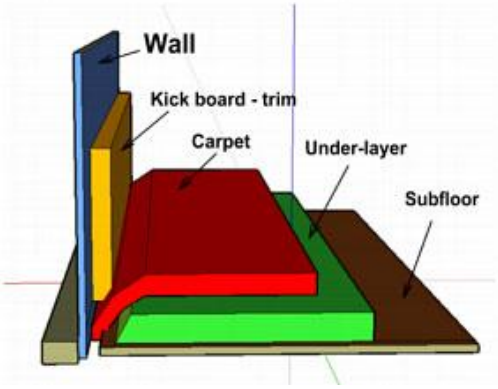
If you never done these things and still think you can do it alone, take my advice and hire contractor.

Never attach projector just to drywall without support. It will probably hold just about one hour...

Soon the walls are up. The contractor has to put the skeleton and drywall around any obstacles such as pipes or various furnaces. He will also mark important places for valves and then later create access to them.







A good contractor can put the subfloor, walls and ceiling in few days, then he will patch the gaps between drywalls and sand it to a flat wall.

Watching the contractor do this on ceiling would be probably the part you would really agree that his money are hard earned.

If you want a little exercise, then at this moment you can give your contractor few free days and prime the walls with prime color. However if you never paint raw drywall, let me tell you that this is quite a exercise. You have to do 2-3 coats of prime and even small room can take many hours for unexperienced painter. The ceiling is a killer and at the end your hands and back will hurt.

After a prime is done and dry you have to make a trim. These are the thin boards around doors and windows and also kick-board around the whole room on the floor. Again a good contractor can have it done in half a day.

The floor trim is important for wall-to-wall carpet. First an underlayer foam will be put on the subfloor (the quality is very important). Then the carpet will be laid on the top, cut and the edge pushed between the gap of subfloor and the trim board.

But of course the carpet is the last thing you want to put in the room! Don't put anything yet.

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Change your basement into a first-class Home Theater.
Page 5 - Creating the art

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The walls are up, now the fun begin

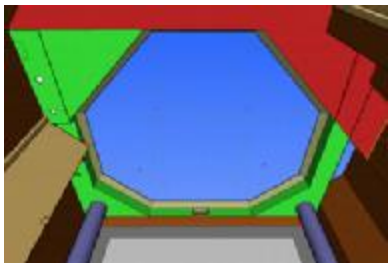
On the left there is the same view before and after the walls were up and painting started.
This is quite a rewarding job since you really see the changes.

In my first plan I chose a red-brown walls, I used low lustre burnt sienna. The wall in front will be used as a screen and the projector will be upside down on the ceiling.

The burnt sienna was chosen for its warmth and to make the room look darker.

Here is the exact color. The leather texture (only on a visible places) was created by a sponge with gloss and lighter red-brown color.

The ceiling in the theater part will be hexagonal and blue. On the right is an image where the walls are already finished and a first coat of blue ceiling was painted. The brown part of ceiling on the image will be one side of the hexagonal and it actually covers heating furnace. With green is marked the overhead I have to build now.



Another look of the CAD design. The brown-red part of the hexagonal ceiling is already done with drywall (it covers the furnace), the green part has to be build.

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Change your basement into a first-class Home Theater.
Page 6 - Building the overhead

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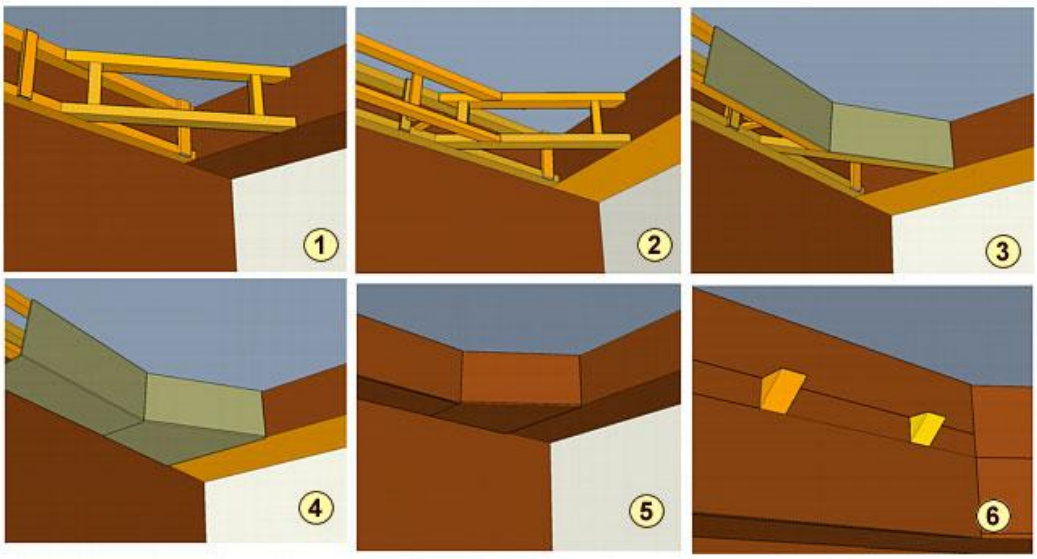
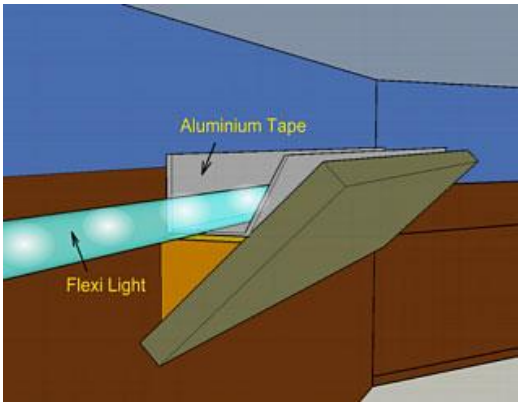
We got painted room, now add some overhead...

Now the task is to build overhead which will create the hexagonal ceiling, then add a shade and tube lights.

All is done quite simple.
1.) A basic skeleton is created from wood using screws through the drywall to the wall studs.
2.) Then a next layer is created fixing it on the skeleton and in the ceiling
3.) The whole skeleton is then covered with a thin plates of plywood
4.) The bottom of overhead is also covered, but I make the bottoms removable so later I can add inset lights.
5.) Then I filled the gaps, sand it and paint it with the burnt sienna like the rest of walls.
6.) The next thing is to create a hidden lights. I used small triangles to which I will fix the tube lights (the flexible transparent tube with many small lights inside)



The hidden light is very nice feature which create light contour around the whole hexagonal,

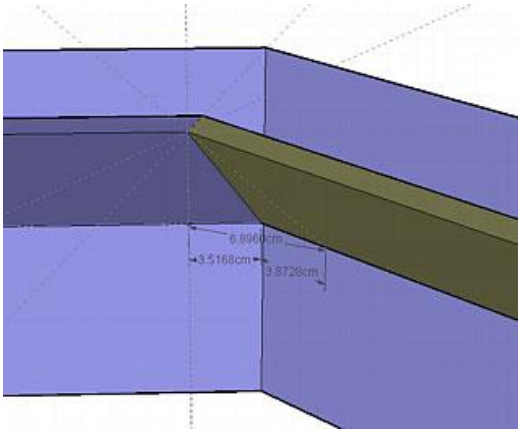


shining only on ceiling.

First I painted with blue also few inches from top on the overhead.
Then I put an Aluminium tape on top of triangles around the whole length to make sure no light will go down.
Then I fixed the flexible tube light which I bought in home and garden store.

The flexible lights have a connector on both sides so they can be connected one after another, creating the length you need. Also it is possible to cut the tube at the end.

Because the ceiling tube light is there more to create feel of big space not a fully light the room (you can even watch a movie while it is on) so a small 24V spot reflectors were attached to the bottom of the overhead, 3 on each side. This creates enough light even for reading.



Then I cut and fixed the molding to the triangles. Cutting joints of the molding in the corners of the hexagonal was a great test from geometry class since there are no right angles and the molding is also tilted. But I cheated, it was first drawn in CAD and then the necessary cutting distances were measured directly in CAD.

It is very rewarding to see that the shapes you cut actually really match. And for any small problems we always have a filling paste.

I think, the ceiling turned out very well as you will see on next pages with real photos.

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Change your basement into a first-class Home Theater.
Page 7 - Finishing up
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Now add some rich features

Now was the time to clean up and get the carpet. I choose a bright red carpet. There is hardly any room in the house where I would be able to put such carpet without constant eye-strain but here was the place. The carpet doesn't lie simply on subfloor, there is a thick under-carpet foam stapled on the subfloor and then the carpet is stretched. I don't think you would want to do this by yourself. The best is to go to the store where you first choose the carpet, order it and they will bring it to your house and install it. See also the page about trim.

The next thing are curtains. They are not on my CAD design since I wasn't sure how to draw curtain but they were going to be there from the first day. The curtains will make the room not only warm and cozy, but they have also a great acoustic properties and will get rid of any hall from walls.
Of course the best would be to use red velvet, but if you ever did shopping for velvet you know that it is one of the most expensive material. For curtains you need at least 3 times the real width. I got something similar with nice red color but for $3/meter in VAL-MART. I've got there also a thin curtain rods and hooks.

My bold CAD design asks for two antic columns right on sides of the screen. These columns will not only make the room less rectangular but they will also optically hide the front speakers from direct view.
One idea was to actually build the front speakers directly on or even into the columns.

I was thinking a long time how to build the columns. One way was to order the columns from a home and garden store because they didn't have anything in stock which I liked. Such columns will come up to few hundred dollars. That's one way.

The other way was to build them. But how?

The home theater is all about movies and movies are all about lies. Nothing is real in the movies so my columns don't have to be real neither.

So in hardware store I picked up a builders hard-paper tube which is I guess used to pour concrete to the ground. I could choose from a big variety of diameters. Then I bought a light-marble textured wall paper and in few minutes I had the best columns 20 bucks can give you.

Because of the good start, I simply continued with improvisation for the head and foot of the column. If you look closely at the image you see that this is a wall clock on a piece of wood, all painted white.

This sounds cruel, but the wall clock was a cheap $5 bucks plastic clock from VAL-MART and it was the exact size for my tubes.

This is the complete view of the finished theater room with the columns.

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Change your basement into a first-class Home Theater.
Page 8 - Sounding Good

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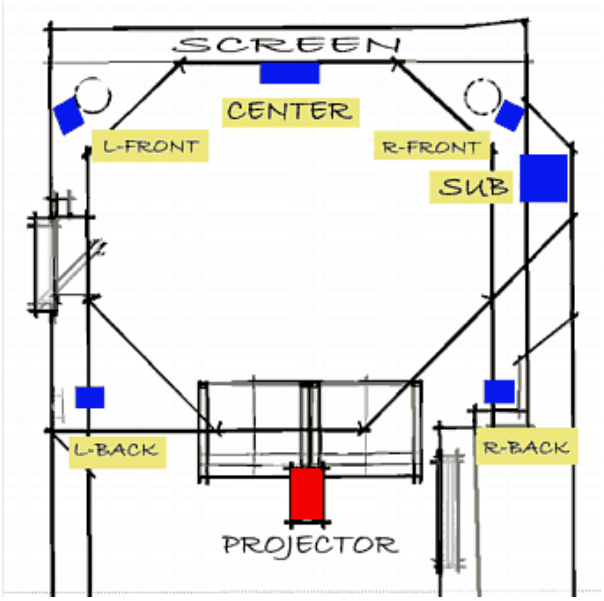
Not only the look, but also a sound...

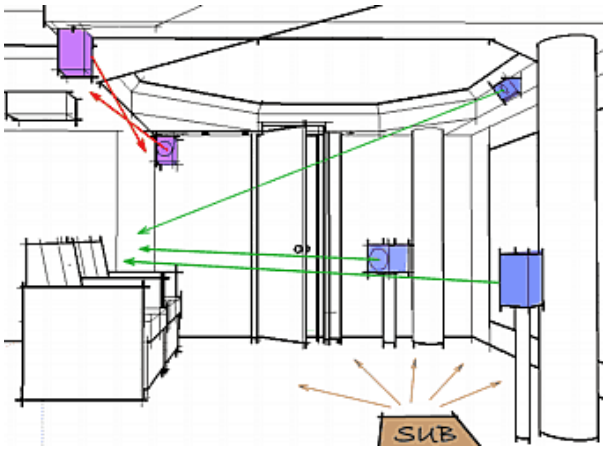


There are many books about surround systems. Even if you buy a stereo surround system, there is already a good description how to set it up, where to put all the speakers, to what height etc....
A good surround receiver has also a parameters for set-up where you enter the distance and height of each speaker in the room.

I didn't want to make the speakers the main feature in the room, I wanted to hide them from direct view.

Just a shortly:
- Subwoofer can be anywhere in the room, the deep bass have no direction feature. I put it on the floor away and actually behind the curtain
- The main front speakers should be in the height of your ears
- A Center speaker must be in center, either down on above the screen
- The surround speakers are meant for surround sound. That is - you should not be able to tell from

which direction this sound comes. So these speakers should not be positioned directly to your ears and their position can be on sides or a bit behind.



On the left image you see the height and direction of the speakers in the room.

Note the direction of surround speakers. Since the surround is never recorded to be directional also the speakers don't point to the seating area but rather diffuse the sound from walls and ceiling.

The best is if the distance from front speakers and center speaker is the same, which is not this case, but this can be adjusted in the receiver (Sony) by entering the actual distances.

The Sony receiver has also a couple of studio modes which simulate the acoustic of few sony recording studios. I found out that for best sound it is actually better not use these programs (unless the DVD was recorded in the exact studio)

See the next page for final photos.

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Change your basement into a first-class Home Theater.
Page 9 - Final images

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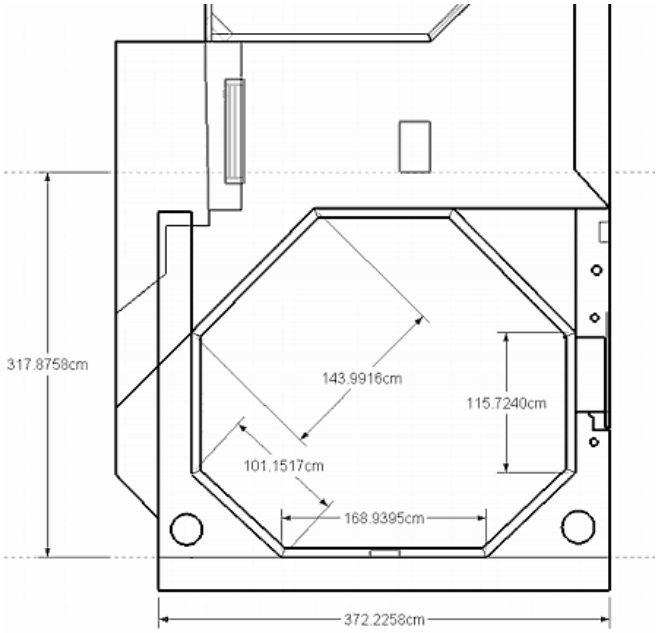
Here are few images from the result. I will try to take more pictures soon.
I had to use a fish eye so the features of the room are visible.

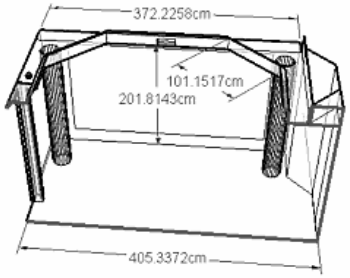
Updates: The updates to this article are posted in the Mediachance Articles Archive.

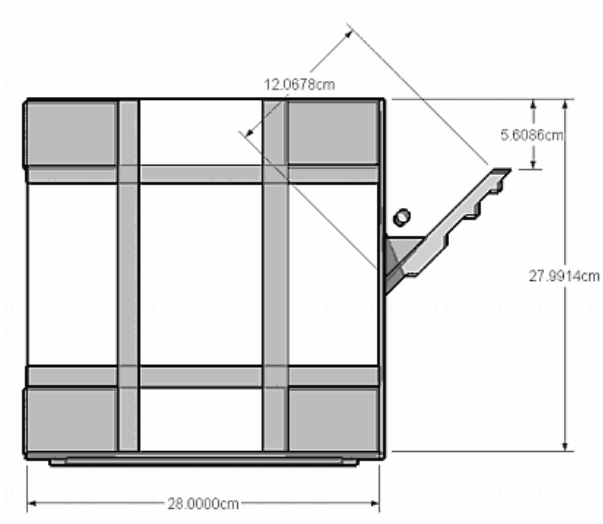
ARTICLES

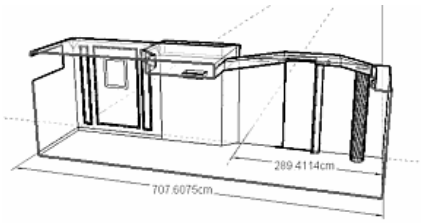
Dimensions

I had been asked many times for the dimensions. Please note that the dimensions come out of the real situation. I had to cover furnances in basement so the whole design started from there. Generally it is a small room about 4 m wide and 7 m long virtually divided into two parts. The sitting is about 3 m from screen.









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