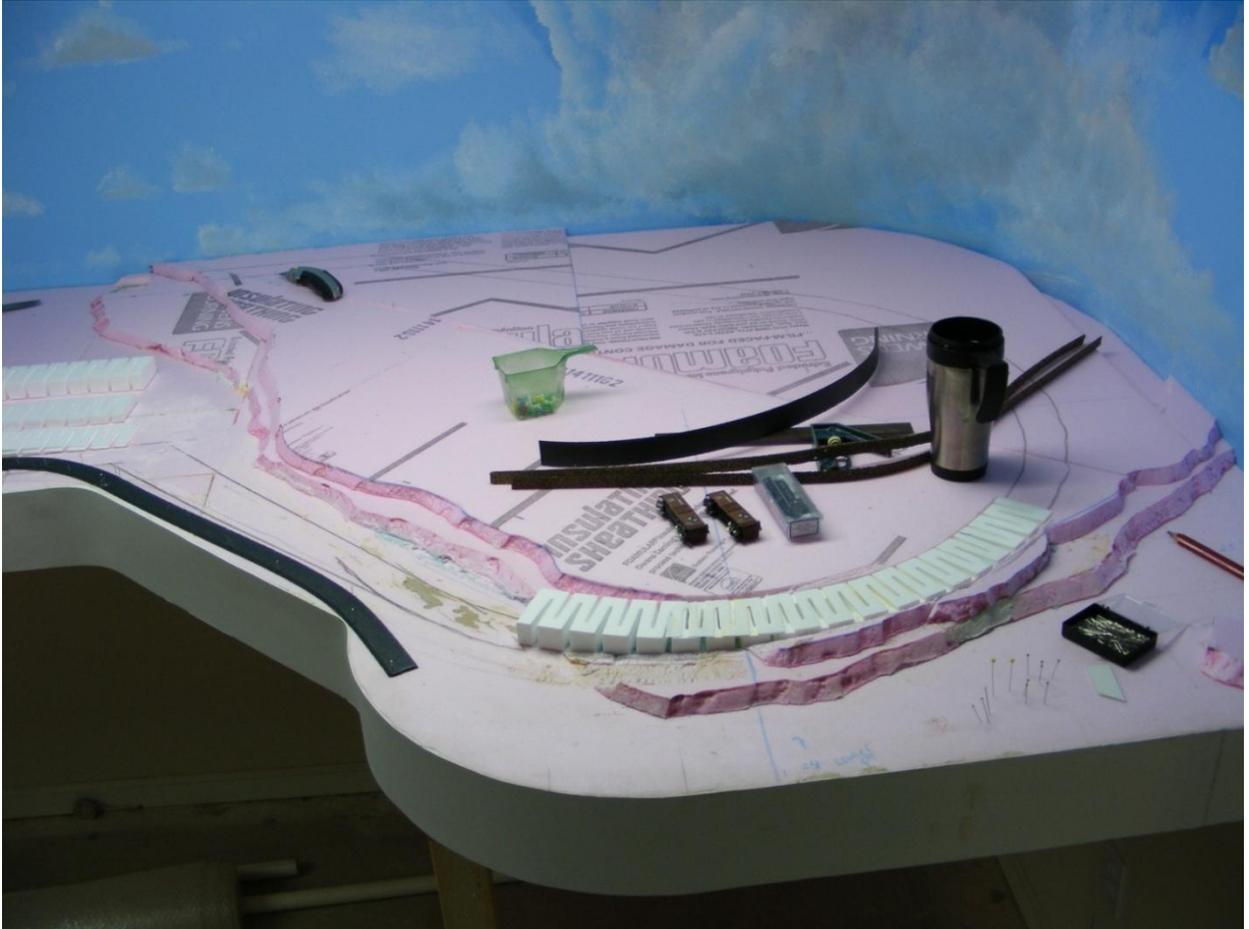


Using Insulation Board for Layout Scenery



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Table of Contents

Introduction:.....	3
Now Let’s Get Started:	3
Strengths verse Weaknesses:	4
Strengths:	4
Weaknesses	4
Tools:	5
Cutting:	5
Shaping:	8
Gluing:	10
Painting:	11
Adding Trees and Other Scenic Elements	11
Water Effects and Foam board.....	12
Conclusion:	12

Using Insulation Board for Layout Scenery

Introduction:

I am an 'N' scale modeler! Because of the light weight of the trains that I model and run, I am able to use insulation board for the base of my layout instead of plywood. I used it because it is light weight, durable and easy to install and form into scenery.

Most of you are modeling in HO or larger scales. Using this material for the base of your railroad layout is not practical because your trains are too heavy. But even larger scale layouts can use this material for the scenery that surrounds the trains. Because the structures, miniature people, trees and other scenic elements are not as solid and heavy as the train models and the insulation board should be able to support them without bowing. Also many of you, who model in larger scales, use this material for the base to your dioramas. It is durable, lightweight and does not curl when it is exposed to moisture.

I was aware of this material for years because it is a common practice in N-scale module building to use this when the module contained hills or mountains. Before this material came along, modules had to undergo repairs between shows. The transport, set-up and tear down took their toll on the plaster on the modules. Also, plaster is heavy, when added to the weight of the board construction, it made the module heavy and harder to move, set-up for a show and tear down afterwards. As soon as this material became available most if not all modules were built to use insulation board rather than plaster. But I had not thought about using this material for my home layout until I saw the N scale layout at the Show Me Lines Train store in Grandview Mo.

This clinic will present what I have learned while working on my home layout. My layout includes both the flat plains and the rolling flint hills. I will have railroad and highway cuts through the flint hills as well as a river and all of this has or will be carved out of the insulation board.

Now Let's Get Started:

I will be presenting the following:

1. The strengths of insulation board construction verse its weaknesses
 - a. This will be based on what I know about the material
 - b. What I know I have learned from others and personal experience
2. What Tools you will need to work with insulation board
 - a. For cutting
 - b. For shaping your scenery such as hills or rivers
 - c. Types of glue needed or that is best to added layers of material for hill or mountain scenes
3. After you have shaped your scenery
 - a. Adding color
 - i. What types of paint should I use
 - ii. What types should I avoid
 - b. Adding water
 - i. What should I use
 - ii. What should I avoid
4. Conclusion

Using Insulation Board for Layout Scenery

Strengths verse Weaknesses:

Strengths:

Let us begin by discussing the strengths of using insulation board for layout scenery.

1. Insulation board is light weight yet durable.
 - a. This means that you can apply it earlier in the building of your layout which could help you get a better picture of how your completed layout will look.
 - b. Its durability means that you do not have to worry about cracking of plaster because you leaned on it accidently while working on another part of the layout.
 - c. Its light weight means that you may not have to add as much structural reinforcing to support your scenery
2. It is easy to apply to a layout
 - a. Its light weight means that you can work with bulky pieces to fill in large areas of the layout without assistance.
 - b. If assistance is needed, you can ask your wife because she will be strong enough to handle this material without difficulty
 - c. Just attach pieces with liquid nail made to attach foam board or paneling
 - d. Can be built up using multiple thin layers or one or more thick layers depending on desired scenic effect
 - e. No messy plaster to prepare
 - f. No drying time considerations to limit work
 - g. No basket weave necessary to structure shape of hills, rivers or mountains
3. It is easy to cut and shape
 - a. This material can be cut using saws, knives both hot and cold
 - b. This material is easily shaped using wire brushes to remove material to create rounded hill tops, the sides of rivers or railroad cuttings
 - c. This can also be shaped using sandpaper to smooth the material after you have finished using the brushes.

Weaknesses

Ok let us get to reasons that you may not like using this material for your layout. I now need to present the weakness of using insulation board for scenery.

1. Limits type of paint products and how I apply the paint
 - a. Do not want to use oil based paints because the chemistry of the paint will react with the board and destroy your scenery
 - b. Do not want to use spray cans of paint because the propellant used will also react with the insulation board to destroy it
 - c. If I want to use washes to color my hill side, cutting or river bank, I must first use a white acrylic paint to prime the material. This covers the blue or pink color of the material
2. Limits type of materials used to create water effects

Using Insulation Board for Layout Scenery

- a. Must use an acrylic material to create water effects because compounds that create heat can melt the insulation board if it gets hot enough.
 - b. Must not use any substance that might interact with the insulation board and dissolve it both destroying the scenery and possibly producing poisonous gas in the process
 - c. If you want to use some material for creating water that will react to the insulation board, you must make sure that your lake bed, river bed, etc. has been coated in plaster. So you would still need to use plaster for the bottom and sides of your water effect. And then, you might still need to make sure your material for creating water does not get too hot during curing.
3. Cannot be used for roadbed material for scales greater than N
 - a. Insulation board just is not strong enough to support the weight of larger engines and cars so plywood would need to be under the insulation board which eliminates the need to use the board for flat layouts.
 4. Material is bulky
 - a. It only comes in 4ft by 8ft sheets so it cannot be loaded into a car or for that matter a SUV unless you have one of the biggest models on the road.
 - b. If you have a large SUV or pickup then no problem but the Lowes and Home Depot stores have rental trucks. That is how I had to haul my insulation board home. And there are other rental options or friends, if you know one with a truck.

Tools:

When working with insulation board, I need to be able to do two things to turn plain board into realistic scenery. First I need to be able to cut the board into pieces that fit into my layout or be able to cut pieces to the rough shapes of my hills, valleys, rivers and other shapes I need to form my scenery. Second, I need to be able to shape the cut pieces into the final form for painting, detailing out with trees and grass, etc.

Cutting:

1. Knives are divided into two types which are hot and cold. Which you use depends on what you want to do in your scenery. Hot knives leave a hard film that is difficult to work with while cold knives dull easily when cutting insulation board but do allow additional shaping after the board has been cut.

Hot knives (these are available from Micro-Mark, the Scribe tool is also available at Hobby Lobby)

Using Insulation Board for Layout Scenery

Crafter's heavy duty hot knife

2. Temperature control from 225 to 750 degrees
3. Has removable hot blade protector
4. Cuts easily through all thickness of board
5. Useful for cutting and shaping



Hot wire scroll table for precision cutting and mitering.

- Have not used this but would provide miter control if you want to hot cut all of your scenery pieces

Hot wire foam cutter called hand tool in picture to right.

- Useful to shape foam before you glue it down.
- Its shape would not make it useful for shaping after gluing or for cutting large thickness of foam board.

Scribe tool which is a metal rod that gets hot enough to melt the foam board.

- Is good for light weight shaping and making holes.
- Not useful for cutting large thickness of foam board or heavy duty scenic molding.



Using Insulation Board for Layout Scenery

Precision Knives (these are available at Hobby Lobby, Hobby Stores and Micro-Mark)

- These come in various shapes and sizes.
- They have a handle that can be unscrewed to use different attachment blades of different lengths.
- They work well for shaping and for cutting thinner thicknesses of foam board but not for thicker pieces.



2. Saws which can be divided into specialty saws made for use on foam board and sheet rock saws which you can also use to cut foam board. These saws will cut through any thickness of foam board but I would not use them to do the cutting of the board to size but to shape the foam board after it has been attached or just before it is attached. These saws tend to tear up the board as they cut it.

Foam Board Saw (I have only seen this at Micro-Mark).

- This is a 9" long saw that is built for the special purpose of cutting foam board.
- It can be used to cut foam board before or after application to the layout. I would use this to complete my basic or first shaping of the board.
- To cut the hill or other feature to the approximate size.
- It allows you to remove large amounts of material at one time.



Using Insulation Board for Layout Scenery

Keyhole saw which can be found at hardware stores, Home Depot, Sears, in fact, any place that sells tools. This saw is used for cutting holes in sleet rock and wood. It can be used like the foam board saw. The teeth are larger in this saw so they tear up the foam board more so be careful. Otherwise you will remove more material than you intend to remove.



Shaping:

1. Keyhole saw, shown above, is also useful to dig out rivers and valleys. This tool should be used first because it takes off a lot of material and leaves the surface vary rough. I have always used the wire brush after using the keyhole saw to smooth the surface.

2. Picks

- Useful for digging out material to add depth to the weathering of the rock cuttings.
- They also are useful for adding other scenic elements such as trees, fences, posts, signs, etc.



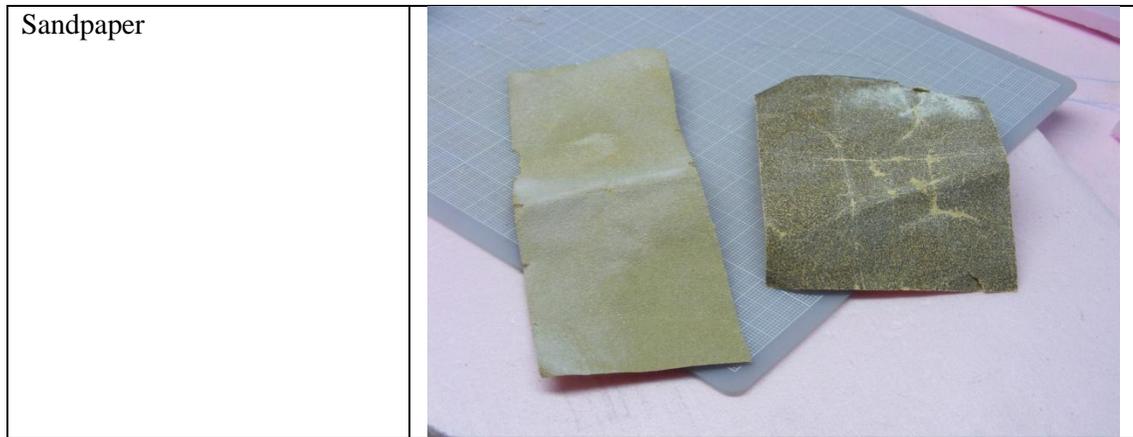
Using Insulation Board for Layout Scenery

Wire Brushes



3. Wire brushes are used to take the foam board that has been cut to the final stage of developed scenery. Wire brushes are good for howling out indentations, creating exposed rock on the sides of cuttings, smoothing the tops of hills and creating fields, streams and rivers. Brushes are made
 - a. Steel – can be found in hardware stores, the Home Depots. Anywhere were you buy tools you will find these brushes. They come in different widths. Some have scraper blades and some don't. They do a good job of removing material to round corners, tops of hills and other shaping jobs needed to create your scenery.
 - b. brass – where steel brushes are designed to scrape off paint, brass brushes are designed to clean brushes, files and other clean – up jobs. The bristles are not as hard and therefore don't remove as much material. These are good brushes to use as the final touch up brush.
 - c. Brushes also come in both wide and narrow varieties which are used differently to produce different scenic effects:
 - i. Wide brushes are good for shaping larger sections of foam board, like rounding off the tops of hills or creating major valleys, rivers etc. They work well for the first shaping of a cutting.
 - ii. Narrow brushes are idea for adding texture to the face of a cutting to simulate a rocky surface.

Using Insulation Board for Layout Scenery



4. Sandpaper is also used sometimes when I want the surface smoother than the wire brushes are capable of making it. I used course and medium sandpaper. Sandpaper comes in handy for small fields, home lots or to give the rounding of a hill the final touch before applying the paint and grass.



5. Precision knives are used to add texture to the sides of a cutting to add rock detail. I cut into the side of cutting using the knife, making horizontal and vertical cuts to bring out the rock detail I am trying to model. This is done after the brushes have been applied to give the overall effect.

Gluing:

- There are various types of glues that can be used but for best results I use Liquid Nail. I use the tube that states that it is made for paneling and includes foam board on the side of the tube. There is also the same product that is formulated just for foam board which also works when you are

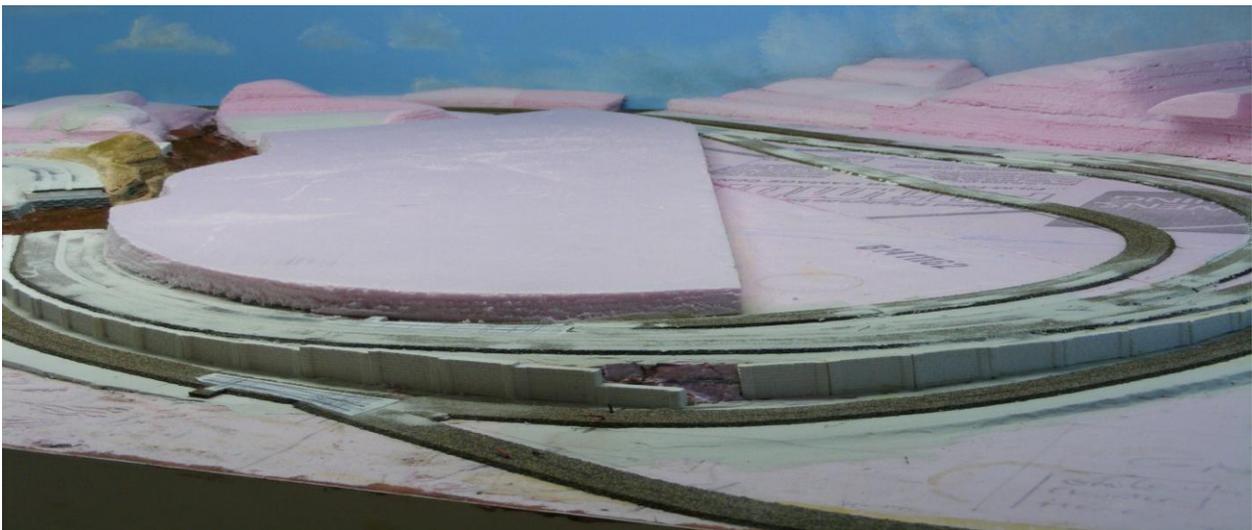
Using Insulation Board for Layout Scenery

gluing foam board to foam board. But I have used the paneling glue with good results even when gluing foam to foam. I would not use wood glues because the foam board is an insulation material and the glue will take forever to dry.

Painting:

- Stay away from oil based paints because they will react with the foam board. The reaction will cause the foam board to dissolve which means you will be replacing the scenery you attempted to paint.
- All acrylic paints are safe to use because they do not react with foam board. They are cheaper too.
- If you prefer to use light washes to color your rocks and scenery, you will need to paint your foam board with a white acrylic paint or a mat preparation, which is also just white paint, to cover the pink or blue color of the foam board.
- Do not spray paint foam board scenery, it will destroy the foam board. Of course, I do know why you would want to paint scenery with spray paint anyway!
- If you use plaster on top of the foam board to model rocks, rivers, etc., then the plaster allows use of oil based products for painting and coloring your scenery because it prevents contact of oil paint and foam board.
- Use of plaster might also remove the need to paint the scenery white before washes are applied.

Adding Trees and Other Scenic Elements



- This material is easy to add trees, fences and other scenic elements because it is softer than plaster
- Tree roots do not have to sit on the surface but can be worked into the insulation board for more realistic looking scenery
- Wholes to set your signs, fences, etc. are easily to make, just add a little glue and set your post in the whole
- Scenery does not have to sit on the surface or need a drill to make the wholes you need!
- Do not be afraid to mix up your paint, sand, and other scenic elements and just apply them directly to this board, no need to add plaster first unless you really need it!

Using Insulation Board for Layout Scenery

Water Effects and Foam board



- You must be careful not to use any of the many water effects products that are oil based or epoxy based because they will destroy the foam board
- There are a number of acrylic water effects creating products on the market. Realistic Water and Water Effects are both offered for sale by Micro-Mark. There is also the artist product called Liquitex Goss which is a thick liquid or paste artists use to add texture to their art and which we can use to simulate water. This is the same material that Marty Vaughn uses and used as the modeling material for his clinic on constructing water effects.
- Addition of plaster to create rock effects using rock molds and to coat the bed of your lake, river or stream eliminates the restrictions on what type of products you use for creating your water effects because the plaster insulates the foam board from the product you are using for creating your water.

Conclusion:

Use of foam insulation board can produce light weight and yet durable scenery. Because of how the insulation board is manufactured, there are limits as to what products can be applied directly to the board to add color or water effects. It is my belief that the board is quicker, easier and less messy to apply than cardboard webbing covered with plaster cloth. It is easy to cut shape using hot knives, saws, and various types of knives. It is easy to shape using saws, knives and various sizes of brushes. Also, plaster can be applied over the foam board to give it rock effects along rivers, railroad and highway cutting and on the sides of hills and mountains. When plaster is applied over the foam board, any product can be used for painting or to produce water effects. The foam board is easy to get but is only sold in large 4 by 8 feet sheets which can be inconvenient if you don't have a truck or trailer hitch. But the stores that sell this material also rent trucks and there are rental agencies so it is possible to get this material home without too much pain or expense.

I have used it on my home layout and I would like to encourage you to try it if you are building a home layout.