Q. And what about the Hefele reference, was that provided by the lawyers?
A. Yes.
Q. The Bayer reference, was that provided by the lawyers?
A. Yes.
Q. And the Eaton reference was provided by the lawyers also?
A. Correct.
Q. Which references in your declaration did you find, if any?
A. I believe all of them, other than the patents.
Q. Coming back to the '757 patents, in column 1 it refers to, at about line 11, it refers to -- I'm sorry. I'll wait until you get there. Sorry about that. Column 1, about line 11, do you see where it refers to U.S. patent number 666,498?
A. Yes.
Q. Did you review that patent?
A. Can you tell me the author of the patent?
Q. Its Collins patent.
A. I don't recall reviewing that one.

Q. And on the next line there is one, U.S. patent number 201,946, which is another Collins patent. Did you review that patent?

A. I don't recall reviewing that patent.

Q. Did you review any prosecution histories as part of your reviewing? Do you know what I mean by prosecution history?

A. Yes.

Q. Did you review any prosecution histories as part of your review of the patent?

A. Yes.

Q. What prosecution histories did you review?

A. Well, it's in my report. (Indicating.)

Q. Okay. You are now looking at your report, which is exhibit 1014; right?

A. Right. On page five, item A.

Q. I'm sorry, what page of the document?

A. Page five.

Q. So you reviewed the '757 patent prosecution history; correct?

A. Correct.

Q. Did you review any other prosecution histories?

A. Everything that I reviewed is in the report.

Q. And just so we're clear, everything you reviewed is listed under paragraph 11 of your report; is that correct? I'm on page three. Did you list everything you reviewed there in I guess paragraphs 10 and 11?

A. (Reading.) Yes.

Q. Which documents in paragraphs 10 and 11 did the lawyers furnish to you?

A. All of the documents up to and not including item I.

Let me add to that. I was also provided items K and L.

Q. So that means that the documents that you contributed were letter I, letter J, and letter M; is that correct?

A. Yes.

Q. The item that you listed at letter J, the GATF "Encyclopedia of Graphic Communication," what generally is that?

A. Is it considered the most extensive encyclopedia on printing technology.

Q. What is GATF?

A. GATF refers to the Graphic Arts Technical Foundation which, to elaborate a little further, is now part of the Printing Industries of America.

Q. And when you say it's the most extensive encyclopedia, what do you mean by that?

A. It has more terms and more definitions than any other publication in the industry.

Q. Is it considered authoritative within the industry?

A. I would say so, yes.

Q. What about other GATF publications, are those also considered to be authoritative within the industry?

A. Yes.

Q. And what was the purpose of reviewing the GATF encyclopedia as part of your declaration?

A. To help provide the attorneys involved in this case with resources that better educate them, I guess, on the Gravure printing process.

Q. Would that encyclopedia also relate to lamination processes?

A. I would expect that it does.

Q. But you are not sure?

A. I would have to go back and just review the table of contents and the index.

Q. And what about spraying as Lassiter uses spraying, is that considered a print process?

MR. PEJIC: Objection, form, relevance.

A. Yes.

Q. What authority would you cite for that proposition?

A. I would cite authorities that reference non impact printing. One example would be ink jet printing.

Q. Any other examples of non impact printing?

A. Electrostatic printing.

Q. Anything else you can think of as far as non impact printing?

A. Well, for the moment I'll leave it at that. Those are the two major processes that are used that employ non impact printing.

Q. What type of substrates are used in non impact printing traditionally?

A. Well, first I'll say virtually any kind of substrate; but traditionally, it would be paper, canvas. It could be certain fabrics, a board. Substrates that meets -- the processes are particularly suited for substrates that have irregular surfaces. You know, lots of peaks and valleys.

Q. What sort of thickness would you be talking about for the non impact printing traditionally?

MR. PEJIC: Objection, form, irrelevant.

A. Any thickness that would pass through the printing system.

Q. What thicknesses are most printing systems designed for?

MR. PEJIC: Objection. Form and relevance.

A. Non impact printing systems are designed for a wide range of surfaces and thicknesses.

Q. Now, just coming back to your declaration, the next paragraph there, it

states, "It is my understanding that the level of ordinary skill in the art also is reflected in the disclosure of the prior art references above."

What do you mean by that?

A. What I mean is that persons of ordinary skill in the printing field would understand the methods and techniques for printing on a variety of substrates, regardless of the process. And I mentioned previously there are basically five traditional processes and two that are becoming traditional.

Q. And the two that were becoming traditional, what were those again?

A. Ink jet and electrostatic.

Q. And those are the non impact printing?

A. Correct.

Q. And when you are referring to the level of ordinary skill in the art, what level are you referring to?

A. Well, based on my experience, it would be, I would say, a person who has a minimum of a Bachelors Degree. It could be in printing, it could be in industrial technology,

it could be more generally graphic arts or graphic communications. And then maybe three to five years of experience working in the field.

Q. And that would be your definition of what a person of ordinary skill in the art is in the context of the '757 patent?

A. In the context of printing.

Q. Is your definition of a person of ordinary skill in the art in the '757 patent different than what it would be in the printing art?

A. As related to the reference to printing in the patent, I would say it would be the same.

Q. But for in relation to roofing or building covering materials or nail tabs, that might be different?

MR. PEJIC: Objection, form.

A. In the manufacture of the roofing material itself, yes, but not in the printing on the material used for roofing materials.

Q. But aren't the claims of the '757 patent directed to the method of making the roofing or building cover material?

A. Inherent in the claims is what appears in the description of the patent, the background, the invention, the detailed description, which all relates to printing. That's made very clear in the patent.

Q. And so Claim 1 isn't directed to a method of making a roofing or building cover material?

A. (Reading.) It begins by citing a method of making a roofing or building cover material. However, it then goes on to read in Claim 1, comprising the steps of depositing tab material on to the surface of said roofing or building cover material at a plurality of nail tabs from a lamination role, et cetera, et cetera. That refers to printing.

Q. The first step there that talks about treating an extended length of substrate, is that basically putting the asphalt on the substrate?

MR. PEJIC: Objection to form.

A. I couldn't comment on that.

Q. Let's look at column 7. Line about 50. Column 7, line 50.

A. Okay.

Q. Do you see there where it says, "Dry felt or fiberglass mat material undergoes treatment in conventional fashion to impregnate, saturate or otherwise surround or coat the organic or fiberglass and polyester mat fibers with asphalt to produce an asphalt saturated felt, mat or substrate material"?

A. I see that.

Q. Is that what's being referred to in the first step of Claim 1, treating an extended length of substrate?

MR. PEJIC: Objection, relevancy.

A. It could mean that in relation to developing the substrate on which the printed tabs were placed.

Q. Could it mean anything else?

MR. PEJIC: Objection, relevancy.

A. I don't know. Perhaps someone in the business of manufacturing roofing materials can answer that question.

Q. You are just not qualified to answer it?

A. I'm qualified to answer any questions related to the printing material.

MR. PORTER: Okay. We're going to

take a break.

(Recess had.)

BY MR. PORTER:

Q. Dr. Levenson, is there anything you wanted to change or correct about your testimony so far?

A. No.

Q. Okay. On attachment A of your declaration you have some specifics of your education there. What types of classes are involved with a BS in printing?

A. All classes ranging from copy preparation, the beginnings of creating an image, through preparing that image for printing, through printing that image, for doing any finishing required to that image, to doing the complete printed product, distributing it. This also includes understanding software, a lot of software courses, color management courses, all of the printing processes, all of the finishing processes. And then it also includes management -- costing, pricing, estimating, marketing, sales, quality control, green management, lean management. Everything

involved in the management and technical facets of developing and running a printing establishment.

Today this includes not only print, but non print digital imaging. Website development. You know, Internet applications. We now are, we have courses in 3D printing, in printed electronics and functional imaging.

So I mean, broadly speaking, those are the range at CalPoly and a lot of other universities, these programs are heavily laboratory oriented.

Q. When you said finishing of images, what did you mean by that?

A. Anything that's done to the printed image subsequent to printing. In the traditional sense of, I'll say, printing books or magazines or brochures, collating, cutting, stitching, trimming, those sort of things. Laminating. Anything that's done subsequent to the actual printing is considered finishing.

Q. And when you say laminating is a finishing process, what do you mean by that?

A. Well, in the traditional sense, laminating is -- for example -- there are many

examples. One would be for applying, let's say, a protective plastic polymer material over a printed surface. Okay. That would be a traditional lamination step. Distinguished from how lamination is referred to in some of the references that we discussed previously.

Bonding two substrates together could be, in the traditional sense now, laminating one substrate on top of another. Those are just some examples.

Q. What about coating, would that be considered a finished process?

A. Well, that's an interesting question. It could be. However, the technology today often includes coating as part of the printing process. For example, at CalPoly, in our labs, as well as many, many printing labs, we have, for example, a four-color Heidelberg press with a coating unit that's part of the press, so, you know, it prints and coats in one operation.

So a coating in this case would not be a separate operation. In other cases, it could be a separate operation, where you have a coating station where you take your printed

material and feed it through that subsequent to printing.

Q. How long has this -- you said the coating was part of the printing process today. How long has that been the case?

A. Quite a few years. A couple of decades at least.

Q. More than 20 years?

A. It could be.

Q. When you say the education -- I think you said this, and correct me if I am wrong, you said education is heavily lab oriented. Is that what you said?

A. Yes.

Q. What did you mean by that?

A. Okay. To use my facility, CalPoly, we have over 33,000 square feet of laboratories, covering almost every aspect of a process. We have a very sophisticated computer labs for copy preparation, heavily supported by Apple computers. We have laboratories for preparing files for printing. We have design technology laboratories. We have electronic platemaking computer plate laboratories. We have a laboratory for Gravure printing. We

actually have, we're one of the few universities that actually has a Gravure engraver. We have for many years, starting with the HelioKlischograph, and then we replaced it with a Detwiler. Not many universities -- only two, actually -- have those.

Q. What was that called? I'm sorry. A Detwiler?

A. A Detwiler.

Q. Can you spell that?

A. D-E-T-W-I-L-E-R. It's the name of a company that manufactures Gravure engraving technology to engrave the cylinders.

We have sheet fed and web fed printing press laboratories. Very large commercial equipment, a big web -- we have a web press that occupies the whole building. We have a finishing laboratory. We even have a substrate ink and toner laboratory, where we are teaching students how substrates are made, how toner is made, ink, and how to determine the compatibility between toner, inks, other liquid materials and substrates.

And these labs are used also, not

only for our undergraduate and graduate education programs, but also for industry training. We do a lot of seminars and workshops where we actually train people from the industry in these areas.

Q. Do you have access to those laboratories for any work that you want to do?

A. I do.

Q. In connection with this case, have you done any work in the laboratories?

A. No.

Q. Any reason for that?

A. It wasn't requested of me.

Q. In your laboratories, do you have the capability of printing on a saturated asphalt felt, for example?

MR. PEJIC: Objection. Relevancy and form.

A. If we wanted to, I imagine we can.

Q. How would you go about that?

MR. PEJIC: Objection, relevancy.

A. Well, by selecting one of the printing processes. We have an electric bath with ink jet printers. We have a flexographic press that could possibly do that. We have

just not -- we haven't been asked to do that.

I might mention that these labs are used by the industry as well, these labs that we have.

Q. Does Owens Corning use your laboratory?

A. Not that I know of.

Q. And in connection with the, I think you mentioned you had a sheet fed and a web fed machine in your laboratory; is that correct is that right?

A. Several.

Q. Could you run a hot asphalt material through those machines?

MR. PEJIC: Objection, relevance.

A. Those machines are lithographic machines, not designed to print on, you know, an asphalt material.

We have a flexographic press. I would have to consult with the professor who runs that lab whether the technology we have in there would be suitable for printing on what you have described.

Q. Who is the professor that runs that lab?

A. His name is -- actually, there are two. Dr. Malcolm Keif, and Professor Colleen Toomey.

Q. And when you say it's a lithographic, what do you mean by lithographic?

A. The two names I gave you are those who, for the most part, run the flexographic laboratory.

Q. I guess I was going back to earlier, you had mentioned that the presses that you have are lithographic. What do you mean by lithographic?

A. Lithography is a planographics process where the image on the plate -- the image and non image area are on the same plane, and they're separated chemically, okay. And typically, in a lithographic press, there is an impression cylinder -- there is a plate cylinder, there is a blanket cylinder and an impression cylinder through which the substrate passes between the blanket cylinder -- the substrate is printed from the blanket cylinder.

Q. So what would happen if you put a hot asphalt saturated felt through one of those planographics machines?

MR. PEJIC: Objection to form and relevance.

A. Those presses are not designed -- lithographic presses are not designed to print on that type of material.

Q. What about their design makes them unsuitable?

A. The planographic nature of the plate that's being used, where the image and non image area is on the same plane, separated chemically, and the oleophyllic and hydrophyllic process that's used to keep the non image area desensitized and the image area sensitized, so the non image area does not pick up ink from the plate and the image area does. That desensitization, it's mostly water, but there is some chemicals in there, and that just wouldn't work on the kind of material that you are referring to.

Q. What sort of temperatures do you generally use in the lithographic machines or the flexography machines that you refer to?

MR. PEJIC: Objection, form, relevance and foundation.

Q. Did you understand my question?

A. I understand your question. However, there are different facets of these presses.

Are you referring to a different faceted press?

Q. What facets would a lithographic press have, for example?

A. A drying mechanism, for example. There are a number of ways of drying the printed image. The ultraviolet, electron beam are two. So there would be -- there is heat involved in that aspect of the press which is much higher than -- heat basically is not a big issue in the actual printing portion of these presses, with the exception of high speed web presses that have cooling agents that have to cool the substrate subsequent to drying it.

Q. And when you say -- did you say heat is not a big problem?

A. Typically not in the printing portion of these machines.

Q. What temperatures generally are used in the print portion of the machines?

MR. PEJIC: Objection to relevancy.

A. It's really irrelevant. There is

no particular number I could give you. What is relevant is the atmospheric conditions in the room where this technology is being used, and temperature and relative humidity is relevant. And we're talking about in terms of temperature, just kind of normal room temps. 70, 75, you know, 68 to 78 degrees. A normal range.

A particular high-level temperature, as related to the actual printing section of these presses, is not that relevant.

Q. And you mentioned humidity. Is humidity an issue in the lithography or the flexography printing mechanisms?

MR. PEJIC: Objection to form and relevance.

A. Yes, particularly in the lithography.

Q. Why is humidity an issue in lithography?

MR. PEJIC: Objection, relevance.

A. Because the stability of the substrate being printed, particularly paper, is very important. And paper takes on moisture. And when it takes on moisture, it tends to want

to grow, okay. It's called hysteresis, that's the process, and it tends to want to grow.

When it gives off moisture, it tends to want to shrink, okay, and curl.

Approximately five percent of printed paper is moisture, and paper has a relative humidity. You can actually measure the relative humidity of a substrate with a hydrometer. You can actually insert it in the substrate and it will tell you what the relative humidity is.

So if the relative humidity of the substrate is lower than the surrounding humidity of the surrounding area, it takes on moisture. If the relative humidity is higher than the surrounding area, it gives off moisture, and it creates instability of the paper; and stability is very important for the positioning of images as the paper passes through any number of printing stations on a printing press.

Q. Why is that stability so important?

MR. PEJIC: Objection. Relevancy.

A. There are two areas that come to mind. One is called registration, and that is

the appropriate positioning of the image on a substrate. The other has to do with the finishing process. You want to make sure that all substrate coming off of the press has the same dimensions for cutting and other finishing operations required.

Q. Do other substrates besides paper have those same issues with humidity?

MR. PEJIC: Objection, relevance.

A. Yes.

Q. Just coming back to the patent, and specifically, Claim 6 of the patent. The '757 patent that's 1001.

A. (Reading.)

Q. What's meant that the material is pre-formed before contact with said lamination roll, Claim 6?

A. In my understanding, the pre-forming refers to the look and dimension of the image in the imaging cylinder.

Q. And is there an imaging cylinder that's required by Claim 1 to which Claim 6 refers?

A. Looking at figure 4A in the patent, and reference 4-12, there is an imaging

cylinder that includes the shape of the tab material. It's pre-formed in the cylinder.

So if I go back to my description of the Gravure process, pre-forming would refer to the creation of the image via the wells and cells that make up the image area of the Gravure cylinder. Of the Gravure print cylinder.

Q. So under your interpretation of pre-formed, what images wouldn't be pre-formed in practicing Claim 1?

MR. PEJIC: Objection. Relevancy and form.

A. The tab material would be pre-formed.

Q. Claim 1 required the tab material to be pre-formed?

A. Well, the word pre-formed is not used in Claim 1. It is, though, in claim 6.

Q. So you understand Claim 6 is adding an additional limitation to Claim 1 by virtue of it being a dependent claim?

A. By virtue of tab material being included in Claim 1 is an indication that the tab material is pre-formed. What would it be

if it's not pre-formed.

Q. So can you think of a way to practice Claim 1 without using pre-formed tab material?

MR. PEJIC: Objection, relevancy.

Q. And I'm going by your interpretation of what you mean by pre-formed.

A. (Reading.) Using the Gravure process described in the patent, any image, tab material or any other image that's going to be printed from the print cylinder, has to be pre-formed.

Q. So there is no way to practice Claim 1 without using pre-formed tab material?

MR. PEJIC: Objection, relevancy.

Q. Under your interpretation.

A. An image is always pre-formed, regardless of the process that's being used. So I can't think of a way of printing something that has not been previously pre-formed either physically or via software.

Q. Could the tab material that's pre-formed in Claim 6 be a solid material?

A. If you are referring to the tab material subsequent to printing, then once it's

cured and dried, it would be a solid material, if that's what you are referring to.

Q. So in addition to reading Claim 1 as requiring pre-formed material, you are also, under your interpretation, the tab material has to be a liquid?

MR. PEJIC: Objection. Foundation. Form, relevance.

A. Well, the tab material, once cured and dried, finished, is not a liquid. However, prior to the finishing of the tab material, the drying of it, making it ready for application, the material used to create the tab doesn't have -- is not restricted to just being liquid.

Q. So Claim 1 would cover laminating a solid tab material on to the roofing or building cover material?

MR. PEJIC: Objection, relevancy and form. And foundation.

A. (Reading.) Claim 1 says "Comprising the steps of depositing tab material on to the surface of said roofing or building cover material at a plurality of nail tabs from a lamination roll, said tab material bonding to the surface of said roofing or

building cover material by pressure between said roller and said surface."

So Claim 1 literally says that it requires the steps of depositing tab material on to a surface of the roofing material from a lamination roll.

Q. And so that tab material could be solid as it's being deposited from the lamination roll? There is no requirement that it be liquid?

MR. PEJIC: Objection, form.

A. Well, in the context of this patent, I believe it refers to it being liquid. But in the greater context of how these materials can be produced, it can be liquid or it could be another material, a powdered material.

Q. Or a solid strip or sheet?

MR. PEJIC: Objection to form.

A. I don't, unless I'm missing something, I don't get that from this patent. This patent is very clearly -- actually, throughout, refers to printing the tab material, not applying it via a solid sheet.

Q. Well, the claim talks about

depositing; correct? Not printing tab material; right? And I'm looking at the text of Claim 1.

A. Depositing could also refer to printing. Depositing is a broader term than a specific application.

Q. But that was my point, depositing could include a solid material in addition to the printing that you are thinking about?

A. What I was referring to as a solid material is what is being used to apply the tab material to a substrate, okay. That could be a solid or liquid material.

Q. And the tab material immediately before it's deposited could also be a liquid or a solid material; correct?

MR. PEJIC: Objection, form.

A. Immediately before it's deposited from the source of where it comes from, where it's being deposited from, it could be a liquid or a solid.

Q. Claim 4 refers to nail tabs are formed in a continuous strip. What's your understanding of what that means?

A. That's referring to printing an

image or a series of images in continuity, where there is actually no break in the continuity of the extension of the images. It could be on any length of substrate.

Q. So this could refer to covering the entirety of the roofing or building cover material with the tab material; is that what you are suggesting?

A. What it's saying is that the tabs, what this is referring to is that the tabs can be printed, any number of tabs, any distances apart, along any length of a substrate, without a break in the distance between the tabs or, if we're printing a continuous image, a line or a wavy line over the length of any length of substrate, there is no break in the image.

Q. Just coming back to Claim 1, it talks about the tab material bonding to the surface of said roofing or building cover material by pressure. Do you see that?

A. Yes.

Q. What sort of -- what's meant by pressure there?

A. The pressure is the application of force that brings two surfaces together for a