PLEASE HELP – WHAT WOULD YOU DO (OR DO DIFFERENTLY)???

Greetings all – In a year or so I’m looking to retire and am planning to build a dedicated woodworking shop. The overall building will be 60’ x 30’ with one end (14’ x 30’) walled off for bass boat storage and the other end (14’ x 30’) walled off for a man cave/bath/utility area. So the middle 32’ x 30’ is for the wood shop. I’ve been following this forum category for quite some time now, gleaning as much info as I can from everyone’s past experience and knowledge. The below list is what I’ve complied thus far, but I’m sure there is more that I need to be aware of before breaking ground. Any and all comments are welcome as I would like to minimize the “dang, I wish I would have…..” . Thanks so much in advance for your time. Wil

Windows:

* Horizontal windows (narrow sliders) high along walls in shop so it’s hard to see in.
* Anderson A100 series Fibrex windows (relative inexpensive from Home Depot; no vinyl).

Heating and Cooling:

* Looking at a Mitsubishi mini-split system for heating and cooling. No ductwork necessary and appear to be extremely efficient. Am leaning this way due to the short time it takes to get to a comfortable temp when heating or cooling. Was very interested in radiant heat, but it sounds like you either leave it on or plan your shop time in advance due to the time it takes to heat the concrete slab (which in turn heats the room). Also, no natural gas where shop will be built and wanting to avoid propane.
* Radiant heat in floor (may still install the pex tubing just in case I want to add this heat source later).

Lighting:

* 4 ft LED fixtures found at Sams Club (4200 lumens each for $37.00).
* Looking to use these surface mounted lights in the event I want to move/adjust any to reduce shadows once tools are placed.

Electrical:

* Outlets:
	+ Place all 54 inches off floor (still accessible if sheet goods are against the wall)
	+ Place every 6 foot with every other one being a quad outlet
	+ Two outlets in ceiling on separate switch for air cleaners
	+ Additional outlets in floor and ceiling (110 and 220)
	+ Switched outlets in ceiling for lighting (not looking to “hard wire” the lights)
* Dedicated breaker box (200amp service)
* 110v switched outlet for air compressor (in closet)
* 220v outlet for dust collector (in closet)

Shop specific:

* Compressor and dust collector in a walled off closet area (attempt to reduce noise). Will place a vent over the doors to allow “clean” air to circulate back into the shop. I would like to retain the conditioned air and believe placing the dust collector outside would be sucking heated or cooled air out of the shop which would not be overly efficient. This approach is very similar to the Wood Magazine shop setup in Des Moines.
* Dust collection in floor (6 inch PVC) and routed to closet where dust collector will be located.
* Use 1/2'” copper pipe for air drops thru shop. Use braided/flexible hose to hook compressor up to rigid runs attached to the walls.
* Floor sweep included in dust collection ducting.
* Floor-Two options (not wanting to pound concrete all day long):

Question-Do either of these render radiant heat in the slab less effective??

* + First, DRICore subfloor panels. These are 2’ x 2’ square panels with a plastic vapor barrier build into the back ($5.75 per panel at Menards).
	+ Second, treated 2x4 sleepers nailed and glued to the floor on 16” centers. Then place 1 ½ inch rigid foam insulation between the sleepers. Cover all with a 6 mil poly as a vapor barrier and then cover with ¾ inch tongue and groove plywood.

Building Misc:

* Vapor barrier and insulation foam board under concrete floor
* No pitch to floor (flat)
* 10’ ceilings
* No expansion joints in floor (is this an issue??)
* One ten foot insulated overhead door

Dust Collection:

**Re: dust collection systems**

The first thing I suggest you do is peruse the [Bill Pentz site](http://billpentz.com/woodworking/Cyclone/Index.cfm). Start with the FAQ section, there is so much techno-babble there it easy to get a headache (or at least lost). The FAQ part will get you grounded. If you can vent outside, that's a good thing. Be sure the loss of heated/cooled air won't be a problem. Now for my other suggestions/observations:

 1.) Ignore the manufacturer specs on almost all DC's. The CFM's and sometimes the motor amperage's are a figment of someone's imagination (especially the CFM's). Sometimes the HP ratings are as well (the HF 2HP DC is actually closer to 1.5 HP) When comparing them make sure you compare the impeller size (again, the HF model has a 10" while most other 1.5HP models have an 11") You will need to look at the motor amp ratings, even if they are sometimes fudged...not much you can do about that.

2.) A spec that's as important as any is the filtration.Some of the DC's still come with 30 micron bags, which is little more than a dust allowing recirculation of what you're trying to capture. You will probably want 1 micron or better filtration.

3.) With DC, maybe more so than any other aspect of woodworking, opinions are more varied. That's because they range from adequate DC being to avoid sweeping the floor to the other end: capture and contain every possible spec of dust). I lean toward the latter, so factor that in when you consider things. But try to evaluate where you are on that continuum and assess the comments accordingly.

4.) DC can be expensive, and the cost of ductwork can equal or exceed the DC itself.

5.) DC's are loud.....period. That comes as much from the air flow as the machine itself. Consider, storm warning siren fans are not all that different from a DC impeller. I would drop noise from the considerations....if it's a problem, then enclosing it in a closet might be the best approach. But remember this: the DC will running when some other tools is as well (typically), so you will be wearing hearing protection anyway.

Specific recommendations (from my point of view): start with a 240V/12" impeller unit, these would normally be labeled as 2HP. That would be for a single stage ( one with bags) unit. If money allows a cyclone, consider the 3HP units. Cyclones have a few advantages, they are easier to empty, the separator means big stuff doesn't hit the fan (literally) so they can be made lighter and designed for better air flow. But the cyclone itself also introduces a lot of drag on the overall system...that's why you typically see them with slightly larger motors/impellers. If you stay with a SS unit, consider adding a shop built separator like the Thein to capture most of the chips/dust. I would pipe this unit to each tool using 6" ducting...and it would stay 6" all the way to the tool. That might require modifying some of the tools ports to the larger size.

 Lastly, just remember above all: good DC requires a lot of air flow, especially to capture the finest dust. The chips and so on are relatively easy...it's the fine dust that evades capture.