Saint Paul Planning Commission
City Hall Conference Center
15 Kellogg Boulevard West

Minutes May 27, 2011

A meeting of the Planning Commission of the City of Saint Paul was held Friday, May 27, 2011, at 8:30 a.m. in the Conference Center of City Hall.

Commissioners Present:	Mmes. Merrigan, Perrus, Porter, Thao, Wang, Wencl, Young; and Messrs. Commers, Connolly, Fernandez, Gelgelu, Kramer, Nelson, Ochs, Oliver, Schertler, Spaulding, Ward, and Wickiser.
Commissioners Absent:	Mmes. *Halverson, and *Reveal *Excused
Also Present:	Donna Drummond, Planning Director, Patricia James, and Sonja Butler, Department of Planning and Economic Development staff.

I. Approval of minutes May 13, 2011.

MOTION: ***Commissioner Thao moved approval of the minutes of May 13, 2011. Commissioner Gelgelu seconded the motion. The motion carried unanimously on a voice vote.***

II. Chair's Announcements

Chair Commers had no announcements.

III. Planning Director's Announcements

Donna Drummond reported on

IV. Zoning Committee

STAFF SITE PLAN REVIEW – List of current applications. *(Tom Beach, 651/266-9086)*

Three items came before the staff Site Plan Review Committee on Tuesday, May 24, 2011: Beacon Bluff Parcel 2 at 837 Minnehaha Avenue E., demo and grading; City House-Upper Landing Park Event facility at 258 Mill Street, building improvements for catered events; and Nova Academy, new charter school at Madison at Mercer (Victoria Park), preliminary review.

Six items will come before the staff Site Plan Review Committee on Tuesday, May 31, 2011: Como Park High School Paving at 740 Rose Avenue, repave parking lots, drives, and build four new tennis courts; Oxford Community Center Field at 1079 Iglehart Avenue, new synthetic turf field and upgraded lighting; Hazeldon Parking Lot at 615 Drake Street, soil clean up and temporary parking lot; Libby Parking Lot at 855 Rice Street, demolish building and build a new

parking lot; Chittenden Eastman Building at 2402 University Avenue West, new parking lot on lower level of existing building and repave/stripe existing parking area behind the building; and AGAPE School at 1037 University Avenue West, small addition to existing building and rebuild existing parking lot.

OLD BUSINESS

#11-129-965 Capitol Lien & Title/Tony Magnotta – Determination that vertical wind turbines are uses similar to cell phone antennas. 1010 Dale Street N., between Lawson and Hatch. *(Kate Reilly, 651/266-6618)*

Commissioner Kramer said that the Zoning Committee has recommended denial of the determination of similar use, but since then they have had some additional discussion with staff about a different approach in this case.

Commissioner Spaulding said that at the Zoning Committee they struggled with how to properly make sure that this was not overly precedential, in terms of allowing a similar use in all B3 districts across the city. Currently there is a study underway to determine what the appropriate regulation might be for wind turbines. He supports referring back to the Zoning Committee to consider how to tailor a more of narrow set of conditions. It would also be useful for the Zoning Committee to consider the wind turbines as an accessory use that would provide electricity on the property.

Commissioner Kramer added that the Zoning Committee believed at the time and the comments of the city attorney were, yes if you establish the similarity of a vertical wind turbine to a use already allowed in B3 it's a citywide decision, and staff does have another approach.

MOTION: ***Commissioner Kramer moved the Zoning Committee's recommendation to re-refer this case back to the Zoning Committee for additional consideration at their June 16, 2011 meeting. The motion carried unanimously on a voice vote.***

NEW BUSINESS

#11-135-208 Church of St. Mark – Conditional Use Permit for reuse of a large structure (former convent) as a residence for Saint Paul Seminary seminarians. 1976 Dayton Avenue, SE corner at Moore. *(Josh Williams, 651/266-6659)*

MOTION: ***Commissioner Kramer moved the Zoning Committee's recommendation to approve the conditional use permit. The motion carried unanimously on a voice vote.***

Commissioner Kramer announced that they also had discussion at the Zoning Committee about procedures when denying and approving various zoning applications and City Attorney Peter Warner provided them with a detailed memo. He also announced the items on the agenda for the next Zoning Committee meeting on Thursday, June 2, 2011.

V. Comprehensive Planning Committee

Commissioner Merrigan said that at the last Planning Commission meeting the Comprehensive Planning Committee left something on the table that needs to be addressed. They talked about

the parking amendments but the resolution was not officially announced. The Commissioners have that resolution in front of them at there places.

MOTION: ***Commissioner Merrigan moved the Comprehensive Planning Committee's recommendation to approve the amendments as they are in the resolution. Commissioner Ward seconded the motion. The motion carried unanimously on a voice vote.***

Commissioner Merrigan announced that the next meeting is on Tuesday, June 7, 2011.

VI. Neighborhood Planning Committee

Solar Energy Systems Zoning Code Amendments – Release for public review and set public hearing for July 8, 2011. *(Kate Reilly, 651/266-6618, and Allan Torstenson, 651/266-6579).*

Kate Reilly, PED staff gave a power point presentation, talking about how solar installations are currently regulated and the proposal for zoning code amendments related to solar energy systems. The current practice now is that they are treated as a permitted accessory use in all districts, with building mounted systems subject to dimension standards for the building. Freestanding systems are subject to dimension and location standards of accessory structures. Department of Safety and Inspections plan review and zoning staff review the application before permits are issued. Ms. Reilly explained that there are two types of installations: building mounted and freestanding/active. The freestanding/active ones tend to maneuver to follow the track of the sun and the building mounted ones capture as much sun as they can. The code proposal is to permit solar energy systems in all zoning districts as an accessory use, a minor change would be made to language to ensure that the visual impact f rooftop equipment is reduced. They will add solar energy system to the accessory uses listed, clarify that building mounted systems are subject to the dimensional standards of the building, clarify that building mounted systems shall not exceed the height of a variety of roofs and shall not extend more than 12 feet above the surface of a flat or shed roof, and clarify that ground-mounted freestanding solar energy systems are regulated as accessory buildings with flat or shed roofs and shall not exceed 20 feet in height. Ms. Reilly showed some local commercial examples of solar installations; In Saint Paul District Energy has one megawatt solar thermal installation integrated into their building, Minneapolis Convention Center has 60 kilowatt photovoltaic installation on their roof, there is a solar heat installation on the roof at Flannery Construction in Saint Paul, a solar thermal installation on a Saint Paul home, and two more residential examples. Residential systems are more sophisticated or design sensitive. They are usually integrated into the surface of the roof and there are photovoltaic roof shingles, which means that the roof shingle itself is actually the solar energy system. A few questions came up about glare. Current solar panels have a tinted glass to them so they do not give the kind of glare that the older solar installations have given off.

Donna Drummond, Planning Director, asked how does the snow impact these systems, and Ms. Reilly said she has not done any research on that but she will look into it.

Commissioner Thao asked if there are any freestanding systems in the Twin Cities.

Ms. Reilly said there is a proposal for a freestanding one in Eagle Place by the Science Museum. It would look like a building mounted one, but it would be freestanding so it does not rotate.

Commissioner Schertler asked if it is treated any differently then a H-vac system on top of a

building. Ms. Reilly said yes that is exactly how they are going to treat it.

Commissioner Spaulding said talking about sloped roofs instead of flat roofs that it can't extend above the top of the ridge line, some roofs do not have much of a slope but are still a slope, is this an opportunity to provide variance from the code or how would this be accommodated. Reilly said that a variance would be in order.

Commissioner Nelson commented about the glare, because some people build their own solar panels, and he thinks there should be something included with regard to the type of surface that can be on there, so it does not end up being plate glass that reflects sun light.

MOTION: ***On behalf of the Neighborhood Planning Committee, Commissioner Wencl moved to release the draft for public review and set a public hearing on July 8, 2011. The motion carried unanimously on a voice vote.***

Commissioner Wencl announced the items on the agenda for the next Neighborhood Committee meeting on Wednesday, June 1, 2011.

VII. **Planning Work Program Update** – Presentation by Donna Drummond, Director of Planning. *(Donna Drummond, 651/266-6556)*

VIII. Transportation Committee

Commissioner Spaulding spoke about the three items that they had considered at their last meeting. They heard from the Ramsey County Rail Authority which is undertaking a study of rail traffic in the area known as Hoffman Junction and beyond, that is just east of the Union Depot. They expected a dramatic increase in rail traffic because of the economics of it and the conversion of Union Depot, there are a lot of impacts to sort out in that area. Another thing the county is looking at is a fly over bridge that goes across a number of rails to the Union Depot.

They also discussed the city's submission for the Regional Solicitation of Federal Transportation Projects that Met Council is funding from federal grants. Looking over a list of projects that the city is submitting for approval. Lastly they had a presentation about Nice Ride, Nice Ride has a two year plan focusing on connecting with the existing network in Minneapolis looking to move in the corridor between University, Selby, Marshall and Grand Avenue and expand eastward from the Minneapolis hub this year. Then next year add a number of locations around downtown. Nice Ride installs hubs with bicycles that can be rented through a self service system to ride from one hub to another through the twin cities making summer bicycle riding more palatable to a larger segment of the population.

Commissioner Kramer said that there is a lot of consternation developing over the Nice Rides program because none of the Nice Rides are available in the entire eastern third of the city. None in planning districts 2,4,1,5 and nothing in the Como area either.

Commissioner Thao agrees with Commissioner Kramer and said that there is also a need around the lake Phalen area.

Commissioner Spaulding does not know why that did not come up. There model is to try and concentrate service as much as possible because they find that's where its most successful, when able to ride from one hub to another within relatively close proximity. There maybe some room for improvement as suggested.

Donna Drummond, Planning Director, added that Nice Ride is a nonprofit and the city is not funding it, but the city did spend a little money to help with the planning activity related to it. But it is a system that is gradually expanding and it has to remain somewhat compact and has to gradually grow and not leap frog to other parts of the city. The plan is that they would like to expand more in Saint Paul in the future including downtown. It is a matter of getting the funding, they have gotten a little funds this year and there plans are to keep it growing.

Commissioner Ward said in regards to funding, is there model just to provide services based upon there ability to be awarded grants or is there some type of profitability and a percentage that they are using in order to do this expansion.

Ms. Drummond said she is not entirely sure of their business model, but they have to fund raise and they've gotten funds from Blue Cross/Blue Shield and the city of Minneapolis has put in a significant amount of money to facilitate this. Nice Ride does the fund raising for their capital cost to buy the bikes in the stations and people can subscribe to be a member and then they can check out a bike whenever they want or pay a per day fee which probably would cover their operating cost and again this is a nonprofit business and they are expanding as fast as they can.

Commissioner Wickiser said that the most affective use of Nice Ride is that someone purchases a membership for about $40.00 and they ride under half an hour then it is free, so putting the

stations in line between Minneapolis and Saint Paul essentially allows someone not to be charged to ride a mile or two then put the bike in the station get another bike and continue on. That is really the impetus for them connecting from Minneapolis to Saint Paul.

Ms. Drummond noted that this is designed for short trips, these are not like a road bike that goes long distances. This is for short trips so you don't have to use your car and then look for parking. This helps people do local daily trips that are short distances.

IX. Communications Committee

Commissioner Thao had no report.

X. Task Force Reports

None

XI. Old Business

None

XII. New Business

None

XIII. Adjournment

Meeting adjourned at 9:30 a.m.

Recorded and prepared by
Sonja Butler, Planning Commission Secretary
Planning and Economic Development Department,
City of Saint Paul

Respectfully submitted,

Approved _____
(Date)

_____
Donna Drummond
Planning Director

_____
Anthony Fernandez
Secretary of the Planning Commission

PED\butler\planning commission\minutes\May 27, 2011

Kate Reilly - Solar Energy System Zoning Code Amendments

From: Terry Brueck <tbrueck@ema-inc.com>
To: "Allan.Torstenson@ci.stpaul.mn.us" <Allan.Torstensin@ci.stpaul.mn.us>
Date: 7/11/2011 1:15 AM
Subject: Solar Energy System Zoning Code Amendments
CC: "Kate.Reilly@ci.stpaul.mn.us" <Kate.Reilly@ci.stpaul.mn.us>, RalphJacobs...

Alan – thanks for your assistance at the public hearing. I request that you provide these remarks to the entire Planning Commission since they are making a "strategic decision" in terms of making (or not making) St. Paul a "national leader in sustainability". Solar energy is the singlemost important way for St. Paul to become more sustainable – environmentally, socially, and economically, a "triple-bottom line" at the local level. All other non-renewable energy sources are more environmentally damaging (mining, drilling, and greenhouse gas emissions), socially irresposible (health effects), and financially benefit only the power or oil companies.

Solar Energy Systems are America's "New Internet"... restrict access, over-regulate, discourage development, remove economic incentives and they will die. Or conversly, open the access, promote/encourage development, remove restrictions, provide incentives (even offer feed-in tariffs like Germany or Spain) and they will flourish with America as a leader (not the follower we are currently). Everyone knows that those cute little German hamlets lost all the tourists because of those unsightly solar collectors (just kidding – get the point). Just in case you didn't know, Germany is the world-wide leader in solar energy even though the country is farther north than Minnesota! We should be comparing zoning ordinances to Germany (a national program leader) instead of Santa Barbara or Roseville,CA, nor Minneapolis, MN, if we really want to be a "national leader in sustainability".

Please encourage solar development at the residential level in St. Paul! If solar energy systems flourish and get out of hand, you can always clamp down later. If you clamp down now, you squelch it ... and it dies (with little or no recovery possible). When people see solar collectors, they think "progressive community" (not "why did they put that there?"). I'm worried for the future of our city, our country, and our children.

For the record, I'm a concerned citizen and responsible homeowner for over 30 years in St. Paul. I'm not a solar contractor and have no "economic stake" in these zoning code amendments beyond my own very long term payback on our own home solar installation – if I can ever get a permit from the City to build it. (Still waiting since last November!)

I have four areas where I propose you consider changes to the City's recommended zoning code amendments:

1. Sec. 65.921. (b): Freestanding system setbacks – change the "within ten (10) feet of a property line" to be "within ten (10) feet of an adjacent residential property line and within one (1) foot of an adjacent City property line, unless safety considerations require additional setback". This allows for collectors to be closer to City right-of-way property (which may already have power poles, telephone/cable pods, etc.) unless there are concerns for safety.

2. Sec. 65.921. (b): Maximum height of freestanding systems – change the "maximum height of twenty feet (20) feet" to "maximum height of twenty-five (25) feet". This allows for collectors, especially PV arrays, to have additional modules on single pole mounted systems to make them economically feasible. A question was asked by a commissioner during the public hearing that I was not allowed to answer (since I had already testified) about the increased power output of additional rows of modules (higher vertically and across the array horizontally) vs. the incremental cost of the additional modules. Without explaining the details here (except to say that I have "done the math" as a registered professional engineer), additional height (beyond 20 feet) can improve the payback period of (single pole mounted) arrays by as much as 30%. That can be the difference between a 20 year payback and a 13 year payback!

3. Sec. 65.921. (a): Allow for rooftop solar arrays to be south facing – clarify that "dimensional standards that apply to the building" include "allowances for solar panels that must be south facing". Also allow for solar panels on roofs in the rear of the property to "extend above the ridge" if not visible from the

sidewalk on the front-side of the property. Especially allow for roof mounted arrays on garages (or other out buildings on the rear of the property) to "extend above the ridge" of a garage or other out building.

4. Sec. 63.110. (e): Allow for rooftop solar arrays to be south facing – clarify that "south facing collectors are allowed in the roof design, including south facing panels at angles against the roof lines".

Please give these proposed changes due consideration. Feel free to contact me with any questions or clarifications.

Thank you.

Terry Brueck
2279 Summit Avenue
St. Paul, MN 55105
651-644-2634 (home)
651-331-9000 (cell)

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Kate Reilly - Comments for Amendments to Chapters 63 & 65 of the St. Paul Zoning Code pertaining to solar energy systems.

From:	James Darabi <james.darabi@solarfarm.com>
To:	<kate.reilly@ci.stpaul.mn.us>
Date:	7/8/2011 2:04 PM
Subject:	Comments for Amendments to Chapters 63 & 65 of the St. Paul Zoning Code pertaining to solar energy systems.
CC:	<Allan.Torstenson@ci.stpaul.mn.us>, <rebecca.lundberg@powerfullygreen.co...
Attachments:	sketch to show max height of solar pole mount.PDF; picture example of pole mounted PV array.PDF; speedichannel line set covers.pdf

Dear Kate:

This email and its attachments are being submitted for the planing commission review:

Sec. 65.921. Solar energy systems (b) Freestanding systems: - see attached " sketch to show max height of solar pole mount" and as a reference see attached for "picture example of a pole mounted PV array" to show how it would look.

I do not feel the 12ft free standing height requirement is large enough because it does not consider the steep tilt angle of 60 degrees used for winter tilt on a pole mount systems nor does it allow for snow shed. It may be fine in an area with less snow shed or a lower latitudes where the array tilt angle can be less in winter. If the 12 ft requirement were maintained it would restrict pole mounted systems to very small and costly(cost per watt) systems. A small increase in height to 15 feet or 20 feet max height would allow for much larger systems that would have similar aesthetics.

is: "...freestanding systems in residential districts shall not exceed twelve(12) feet in height ...."

See three alternative height options below:

Option 1) ideal proposal : "... freestanding systems in residential districts shall not exceed twenty-four (24) feet in height ...."
This is based upon the calculations of the sketch attached using a 15 module pole mounted PV array using commonly available(best value) solar modules. If one does not keep the wiring of the array 8 feet from the ground then it needs to be protected so one practice is to put the height of the pole high enough so that the wires are 8 feet above the ground and then are considered un-accessible. This would allow for a 15 module pole mounted array per sketch attached.

Option 2) alternative proposal: "... freestanding systems in residential districts shall not exceed twenty (20) feet in height ...."
This gives 3 feet of height for snow shed but would also mean a protective cover on the back of the array would be needed to protect people from accessing the wiring or a lockable fence would need to be put around the array. As the protective cover or screen is not commonly available off the shelf and it adds cost and can have variation in appearance dependent on how it would be done. And the fencing option would add even more costs unless the fence was already there. This would allow for a 15 module pole mounted array per sketch attached.

Based on my calculations using a winter maximum gain tilt angle of 60 degrees and 3 feet for snow shed and using commonly available size modules and common DPW pole mounts, the twelve foot height requirement would restrict the pole mounted PV arrays to a four module array which if using 250 watt modules would be a 1kW array providing about 15% of the electricity of a common home. This is really a very small system for the work/cost required for a pole mounted system. In this mornings hearing while on the spot I had thought that this would cost only about 10% to 15% more to the cost per watt but

I was wrong because I was thinking I could get a 2kW system. But with only a 1kW system the additional cost for having a small system over a larger system is estimated at around 30%. Some of the costs are closer to fixed than variable so that is why smaller systems would cost more.

On the other had a 15 module array using 250 watt modules would yield a 3.75kW array almost 4 times as large in electrical production, providing about 57% of a typical homes electrical needs. This larger array would be more cost effective in valuation in cost per watt.

Option 3) compromise proposal: "... freestanding systems in residential districts shall not exceed fifteen (15) feet in height ...."
This adds 3ft for show shed and would require a protective wire cover on the back or protective fencing and would allow for a commonly available 8 module DPW pole mounted array using commonly available modules. Using 250 watt module this would yield a 2kW system providing about 30% of a typical homes electrical needs. This would look something like the picture attached.

Sec. 63.110. Building design standards.

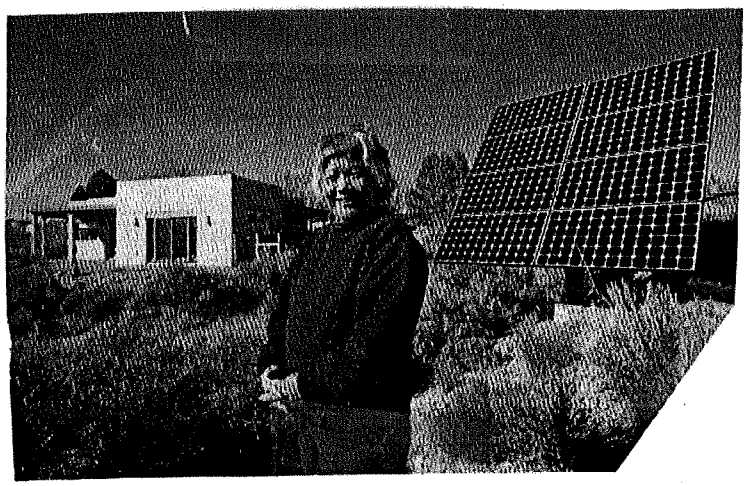
is: "Exterior mechanical equipment such as ductwork shall not be located on primary building facades.."

request: Allow for pipes or conduits to be put in line set covers if on the primary building facade because it is sometimes difficult on some homes to run the the insulated solar fluid pipes(in the case of solar hot water) from the collectors on the roof to the solar storage tank typically located in the basement due to lack of access. It can be cosmetically pleasing to use line set covers(see example of line set cover in attachment) on the outside of the house because they look like a rain gutter downspout and are square to rectangle in shape and have a low profile and are designed for the specific purpose of cosmetically concealing line sets. Using line sets covers and routing the pipes on the outside of the house can also be much more cost effective dependent on the house.

Thank you for allowing me to provide input. Please email or call if you have any questions.

Kind regards,

James Darabi
Solar Farm, LLC
(651) 271-8410



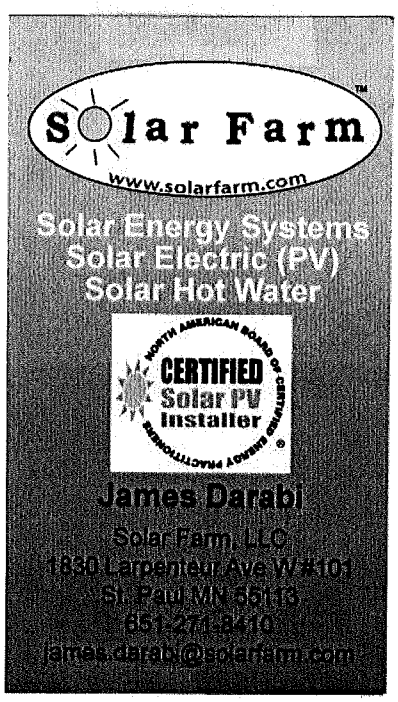
EXAMPLE PHOTO OF
A POLE MOUNTED
PV ARRAY

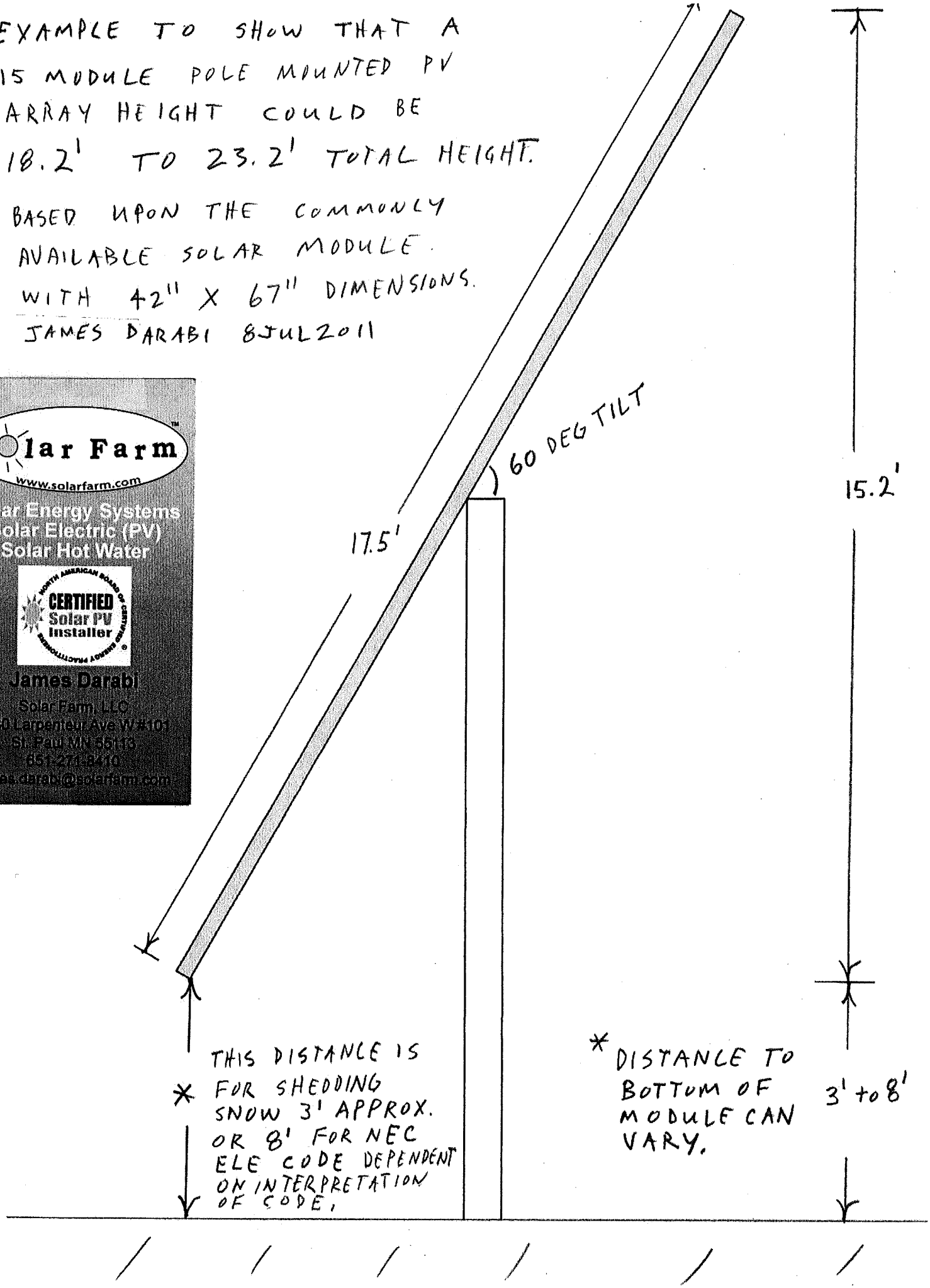
JAMES DARABI 8JUL2011

EXAMPLE TO SHOW THAT A 15 MODULE POLE MOUNTED PV ARRAY HEIGHT COULD BE 18.2' TO 23.2' TOTAL HEIGHT.

BASED UPON THE COMMONLY AVAILABLE SOLAR MODULE WITH 42" X 67" DIMENSIONS.

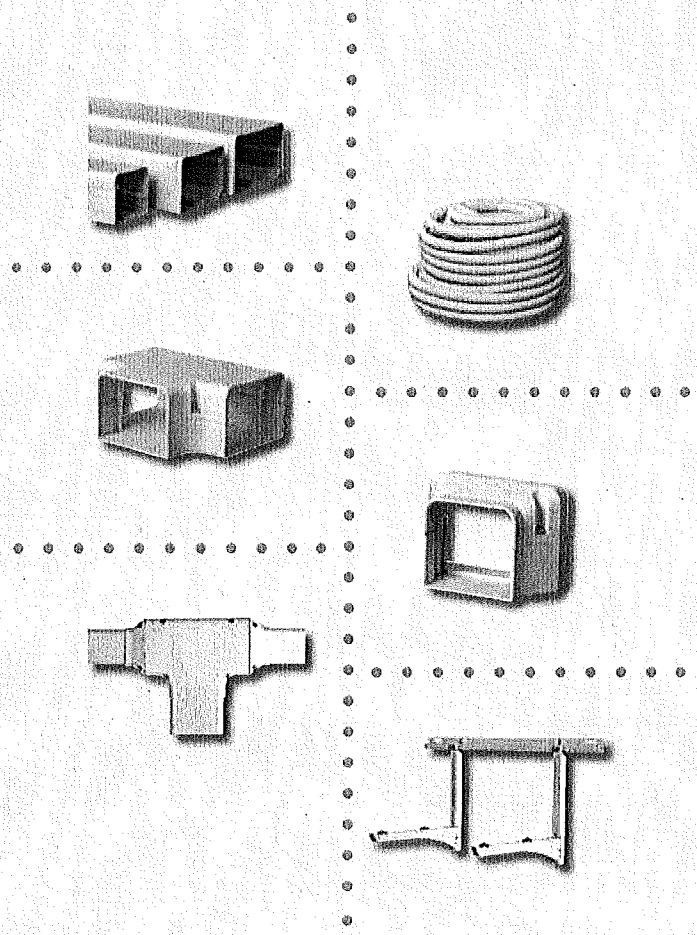
JAMES DARABI 8JUL2011





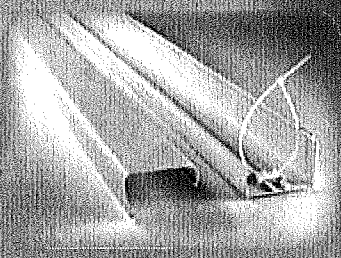
MINI SPLIT INSTALLATION

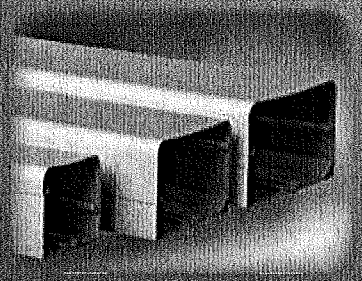
Channels 188
Condensate Drainage 191
Condenser Equipment Mounting 190-191
Fittings 188-190



SpeediChannel™ System

DiversiTech SpeediChannel™ is an innovative channel system used to cover air conditioning line sets. The two part system has a base and a cover. The base is fastened to a wall or ceiling, then a clever little plastic clip (SpeediClip™) snaps into a channel already molded into the base. Then, using standard cable ties, the line set, cables, control wires, and/or condensate drain line are fastened in place. The cover then snaps simply on top of the base.



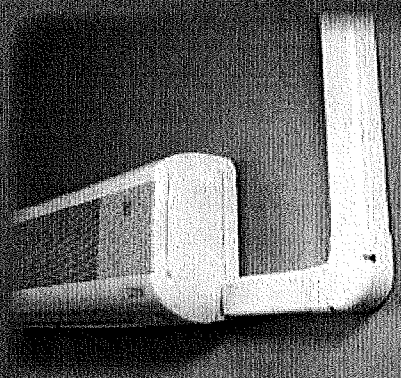


The SpeediChannel™ system is available in three widths – 3", 4", and 6". Each piece of SpeediChannel™ is 6-1/2 feet long. A complete line of couplings, elbows, and tees are available for the SpeediChannel™ system.

Manufactured from rigid PVC, the SpeediChannel™ system is a natural color that is a very close match to the typical mini-split condensing unit case. However, the SpeediChannel™ system can be painted as desired to match any wall color. The PVC used in the SpeediChannel™ system is resistant to UV light and is UL rated.

DiversiTech recommends attaching the base to the wall or ceiling and the line sets to the system every 15' to allow for the system to carry the full weight of the line sets.

The SpeediChannel™ can also be used inside.



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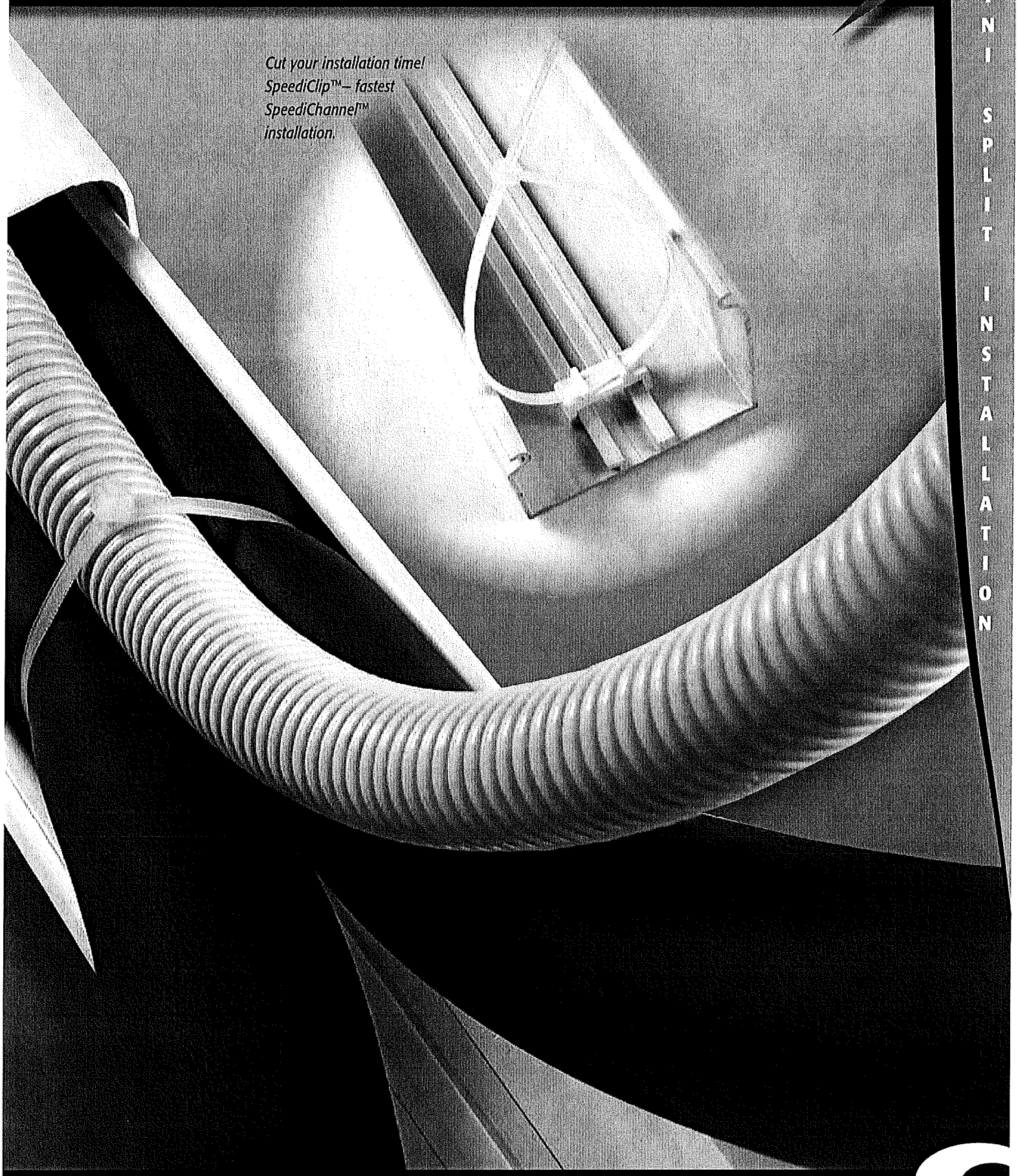
E77075

Download a dedicated catalog at www.diversitech.com/literature/lit-cat-msplit.pdf

This information is available as a contractor handout.
Order item number LIT-FLY-MSPLIT.

DIVERSITECH

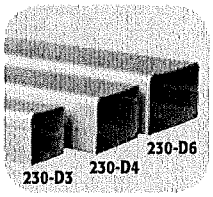
MINI SPLIT INSTALLATION



CHANNELS

SpeediChannel™

The DiversiTech SpeediChannel™ is available in three widths, all in 6-1/2 feet lengths.

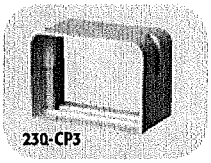


CATALOG NO.	DESCRIPTION	STANDARD PACK
230-D3	3" SpeediChannel™	6
230-D4	4" SpeediChannel™	6
230-D6	6" SpeediChannel™	5

FITTINGS

Union Coupling

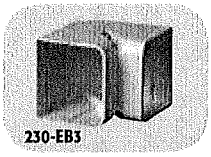
Used for joining two pieces of SpeediChannel™ – each cover being the same size. Each coupling is individually packed, and is furnished complete with stainless steel screws.

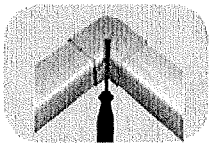


CATALOG NO.	DESCRIPTION	STANDARD PACK
230-CP3	3" Union Coupling	10
230-CP4	4" Union Coupling	10
230-CP6	6" Union Coupling	10

90° Inside Elbow

90° inside elbows are used to route the SpeediChannel™ around an inside corner. Each elbow is individually packed, and is furnished complete with stainless steel screws.

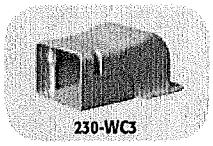


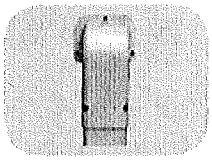


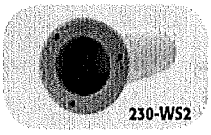
CATALOG NO.	DESCRIPTION	STANDARD PACK
230-EB3	3" 90 degree Inside Elbow	10
230-EB4	4" 90 degree Inside Elbow	10
230-EB6	6" 90 degree Inside Elbow	10

Wall Penetration

Wall sleeves and penetration covers are used to transition from the SpeediChannel™ system to a through wall penetration. The wall sleeve creates a neat hole through the wall, and the line set is covered by the wall cover. DiversiTech's wall covers are designed to allow for easy installation – even after the line set has been installed. A unique hooking and fastening arrangement allows for quick and easy installation. Each wall cover is individually packed, and is furnished complete with stainless steel screws to attach the wall cover to the base. Three screws (supplied by others) are needed to fasten the wall cover to whatever type of wall construction the system is being installed on.



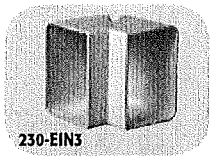


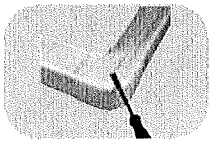


CATALOG NO.	DESCRIPTION	STANDARD PACK
230-WC3	3" Wall Penetration Cover	10
230-WC4	4" Wall Penetration Cover	10
230-WC6	6" Wall Penetration Cover	10
230-WS2	2-1/2" Wall Sleeve	10

90° Outside Elbow

90° outside elbows are used to route the SpeediChannel™ around an outside corner. Each elbow is individually packed, and is furnished complete with stainless steel screws.

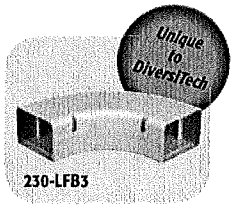




CATALOG NO.	DESCRIPTION	STANDARD PACK
230-EIN3	3" 90 degree Outside Elbow	10
230-EIN4	4" 90 degree Outside Elbow	10
230-EIN6	6" 90 degree Outside Elbow	10

90° Long Radius Bend

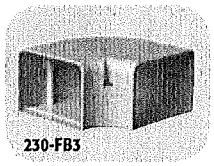
90° long radius flat bends are used to route the SpeediChannel™ around an obstacle. The long radius of the elbow allows a gentle bending radius on the copper line set. Each elbow is individually packed, and is furnished complete with stainless steel screws.

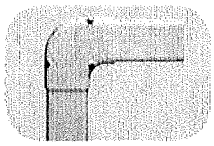


CATALOG NO.	DESCRIPTION	STANDARD PACK
230-LFB3	3" 90 deg Long Radius Bend	10
230-LFB4	4" 90 deg Long Radius Bend	10
230-LFB6	6" 90 deg Long Radius Bend	10

90° Flat Bend

90° flat bends are used to route the SpeediChannel™ around an obstacle. Each bend is individually packed, and is furnished complete with stainless steel screws.

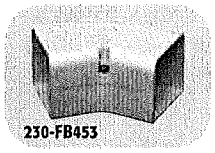




CATALOG NO.	DESCRIPTION	STANDARD PACK
230-FB3	3" 90 deg Flat Bend	10
230-FB4	4" 90 deg Flat Bend	10
230-FB6	6" 90 deg Flat Bend	10

45° Flat Bend

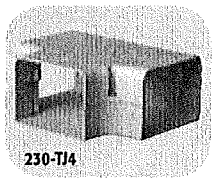
45° flat bends are used to route the SpeediChannel™ around an obstacle. Each bend is individually packed, and is furnished complete with stainless steel screws.

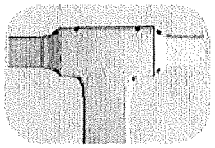


CATALOG NO.	DESCRIPTION	STANDARD PACK
230-FB453	3" 45 degree Flat Bend	10
230-FB454	4" 45 degree Flat Bend	10
230-FB456	6" 45 degree Flat Bend	10

T-Joint

Used for creating a tee connection between three pieces of SpeediChannel™ – all covers being the same size. The tee can be combined with the reducing coupling to join SpeediChannel™s of different sizes. Each tee is individually packed, and is furnished complete with stainless steel screws.

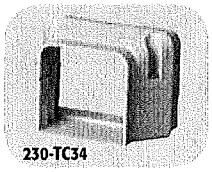


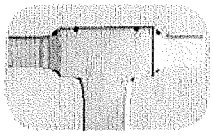


CATALOG NO.	DESCRIPTION	STANDARD PACK
230-TJ4	4" T-Joint	10
230-TJ6	6" T-Joint	10

Reducer Coupling

Used for joining two pieces of SpeediChannel™ – each cover being a different size. Each coupling is individually packed, and is furnished complete with stainless steel screws.

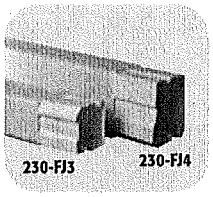




CATALOG NO.	DESCRIPTION	STANDARD PACK
230-TC34	3" x 4" Reducer Coupling	10
230-TC46	4" x 6" Reducer Coupling	10

Flex Joint

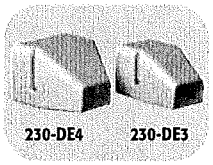
An accordion style piece of SpeediChannel™, the flex joint can be extremely flexible routing a SpeediChannel™ system around virtually any type of obstacle. Each joint is 20" long and can be combined together for longer flex runs. Unlike competitor systems, the DiversiTech flex joint does NOT require the use of a union coupling. The DiversiTech flex joint slides tightly inside the SpeediChannel™ system.

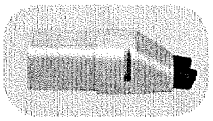


CATALOG NO.	DESCRIPTION	STANDARD PACK
230-FJ3	3" Flex Joint	10
230-FJ4	4" Flex Joint	10

Duct End

The duct end is used to terminate a run of SpeediChannel™ to a small opening – just large enough for the line set and condensate drain line to pass through. Gives a neat/clean installation.

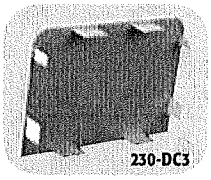




CATALOG NO.	DESCRIPTION	STANDARD PACK
230-DE3	3" Duct End	10
230-DE4	4" Duct End	10
230-DE6	6" Duct End	10

Cap

Used to cap the end of a SpeediChannel™ run. Easily snaps into the end of the SpeediChannel™.

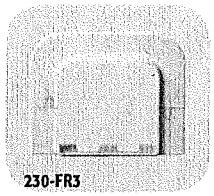


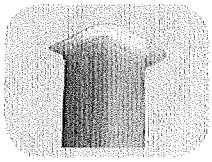
CATALOG NO.	DESCRIPTION	STANDARD PACK
230-DC3	3" Cap	10
230-DC4	4" Cap	10
230-DC6	6" Cap	10

FITTINGS cont'd

Flat Wall Escutcheon

Typically used to cover a rough opening in a soffit, wall, or ceiling penetration. One side of the escutcheon is flat to allow for a SpeediChannel™ run going along a wall, and penetrating through an adjacent wall or ceiling. This is the most common type of wall penetration. Furnished in two parts, the escutcheon easily snaps onto the SpeediChannel™.

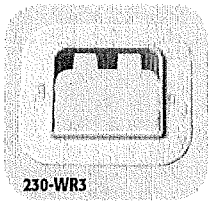

230-FR3

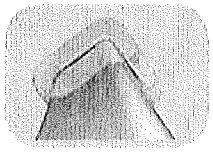


CATALOG NO.	DESCRIPTION	STANDARD PACK
230-FR3	3" Flat Wall Escutcheon	10
230-FR4	4" Flat Wall Escutcheon	10
230-FR6	6" Flat Wall Escutcheon	10

Wall Escutcheon

Typically used to cover a rough opening in a wall or ceiling penetration. The hole in the escutcheon is centered to allow for a free standing SpeediChannel™ to penetrate through a wall or ceiling. This is the fairly un-common type of wall or ceiling penetration. Check carefully, as you may need the Flat Wall Escutcheon. Furnished in two parts, the escutcheon easily snaps onto the SpeediChannel™.


230-WR3

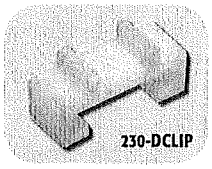


CATALOG NO.	DESCRIPTION	STANDARD PACK
230-WR3	3" Wall Escutcheon	10
230-WR4	4" Wall Escutcheon	10
230-WR6	6" Wall Escutcheon	10

Speedi-Clip

SpeediChannel™ Accessories

A variety of accessories that are complementary or required for installing DiversiTech's SpeediChannel™ system.

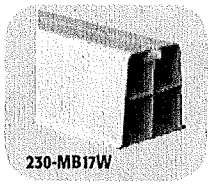

230-DCLIP

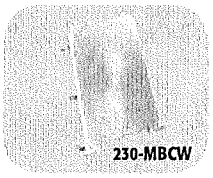
CATALOG NO.	DESCRIPTION	STANDARD PACK
230-DCLIP	SpeediClip™	50
230-DSCREW	SpeediChannel™ Screw	100
WTB11C	Black Wire Ties – 11"	100

CONDENSER EQUIPMENT MOUNTING

Mounting Blocks

Used as mounting bases when condensing units must be bolted down. Available in three lengths. End caps are also available for aesthetics. Furnished complete with mounting bolts. Maximum load capacity is 900 pounds per mounting block. Installation temperature range from -4°F (-20°C) to 140°F (60°C). Mount Blocks fit all mini-split condensing units with a unique sliding rail feature.

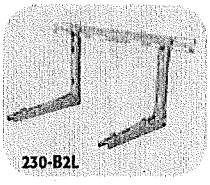

230-MB17W


230-MBCW

CATALOG NO.	DESCRIPTION	PACK/CASE
230-MB14W	14" Mount Block (White) pack of 2	6
230-MB17W	17" Mount Block (White) pack of 2	6
230-MB36W	36" Mount Block (White) pack of 2	1
230-MBCW	Mount Block End Cap (White) pack of 4	25

Type 2 Wall Brackets

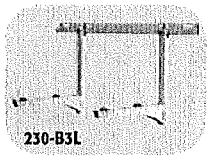
Used for supporting condensing units, type 2 brackets feature a cross bar that is attached to a wall, and two L-shaped brackets that are hooked and bolted into place on the cross bar. The condensing unit is mounted onto the L-shaped brackets, and fastened using the bolts and anti-vibration washers provided.

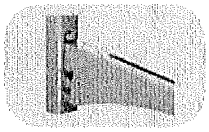

230-B2L

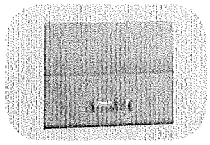
CATALOG NO.	DESCRIPTION	ARM LENGTH	LOAD RATING PER ARM	STANDARD PACK
230-B2M	Type 2 Wall Brackets (Medium)	18"	165#	1
230-B2L	Type 2 Wall Brackets (Large)	21"	220#	1

Type 3 Wall Brackets

Used for supporting condensing units, type 3 brackets (just like type 2 brackets) feature a cross bar that is attached to a wall, and two L-shaped brackets that are hooked and bolted into place on the cross bar. The condensing unit is mounted onto the L-shaped brackets, and fastened using the bolts and anti-vibration washers provided.
The type 3 bracket features an innovative locking mechanism called Easy-Fit™. Easy-Fit™ enables the arms to be joined to the uprights in a matter of seconds. A spring-lock automatically secures the joint, preventing the arms from being dislodged accidentally. All brackets are furnished complete with an integral bubble level to make correct installation of the crossbar easier.





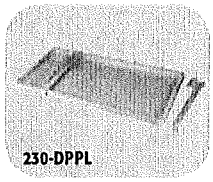


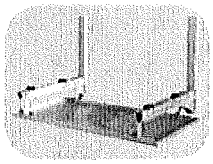
CATALOG NO.	DESCRIPTION	ARM LENGTH	LOAD RATING PER ARM	STANDARD PACK
230-B3M	Type 3 Wall Brackets (Medium)	19"	100#	1
230-B3L	Type 3 Wall Brackets (Large)	21"	150#	1

CONDENSATE DRAINAGE

Condensate Drain Pans

When a mini-split system is operated in heat pump mode, the outdoor coil becomes the evaporator coil. There is typically condensation generated from the evaporator coil. In certain installations, the condenser coil may be mounted overhead on brackets affixed to a wall. In these overhead mount applications, dripping condensation may be objectionable. Condensate drain pans bolt onto the condenser mounting brackets, and the drain line can be plumbed to a suitable nearby drain location. Furnished complete with all mounting hardware, and drain pan outlet, condensate drain pans are available in either plastic or powder coated steel.

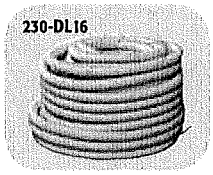




CATALOG NO.	DESCRIPTION	STANDARD PACK
230-DPPL	Poly Condensate Drain Pan (Large)	1
230-DPML	Metal Condensate Drain Pan (Large)	1
230-DPPM	Poly Condensate Drain Pan (Medium)	1
230-DPMM	Metal Condensate Drain Pan (Medium)	1

Mini-Split Condensate Drain Line

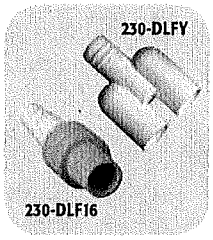
A unique drain line for mini-split units. This large diameter drain line is typical for mini-split installations. Furnished in 160 feet lengths with cut marks every 3.28 feet.



CATALOG NO.	DESCRIPTION	STANDARD PACK
230-DL16	5/8" ID Mini-Split Drain Line	160'/Roll
230-DL20	3/4" ID Mini-Split Drain Line	160'/Roll

Mini-Split Drain Adapters

Mini-Split fan units – either ceiling cassettes or wall cassettes – typically have a unique (metric) drain line fitting. DiversiTech's adapters convert this metric fitting to standard drain line tubing sizes.

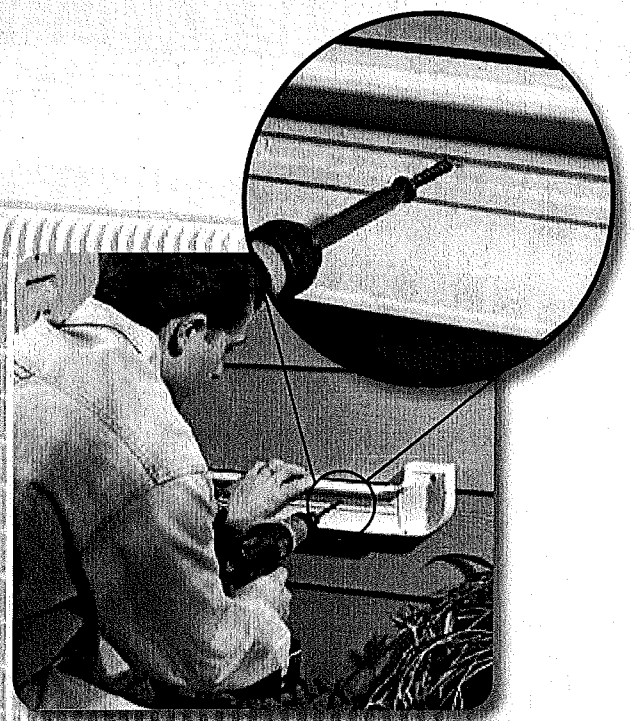


CATALOG NO.	DESCRIPTION	STANDARD PACK
230-DLFY	Mini-Split Drain Line Wye (Pack of 1)	1
230-DLF16	16mm Mini-Split Drain Line Adapter (Pack of 1)	1
230-DLF18	18mm Mini-Split Drain Line Adapter (Pack of 1)	1
230-DLF20	20mm Mini-Split Drain Line Adapter (Pack of 1)	1
230-DLF25	25mm Mini-Split Drain Line Adapter (Pack of 1)	1
230-DLF32	32mm Mini-Split Drain Line Adapter (Pack of 1)	1

SpeediChannel™ System Installation

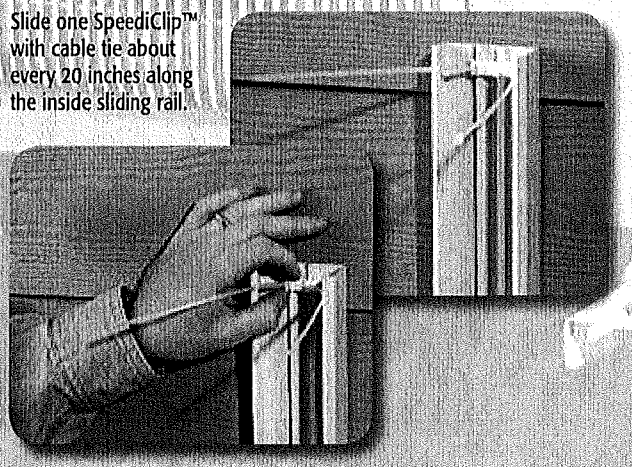
Step 1

Attach the SpeediChannel™ base to the wall about every 15 inches with screws suitable for the wall construction (siding, stucco, brick, etc.). Screw through the center of the molded rail. Slide the connecting piece (elbow, union, tee, etc.) under the SpeediChannel™ before attaching the end of the channel to the wall. When cutting lengths of SpeediChannel™, allow 1/8" gap between the end of the SpeediChannel™™ and the stop inside the fitting to allow for thermal expansion.



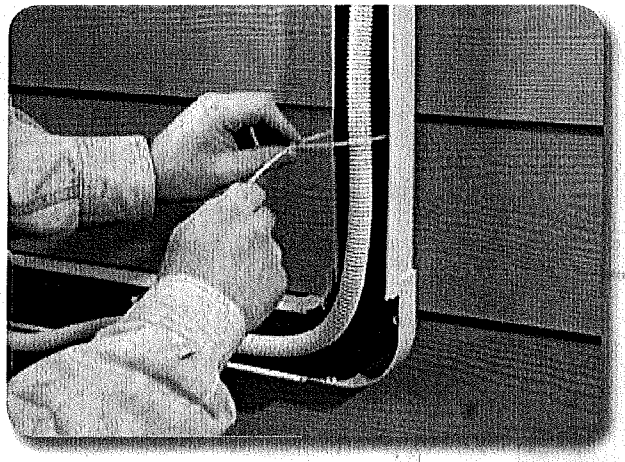
Step 2

Slide one SpeediClip™ with cable tie about every 20 inches along the inside sliding rail.



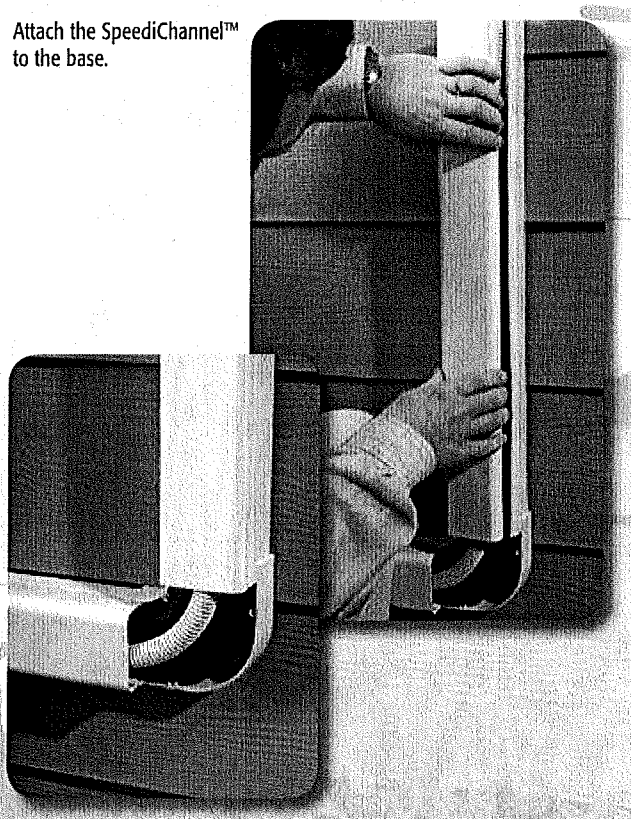
Step 3

Install the line set, drain line, and wires inside the SpeediChannel™. Test the equipment installation prior to tightening the cable ties. Tighten the cable ties snug, but not so tight they damage the tubing insulation or kink the drain line. Trim excess length from the cable tie.

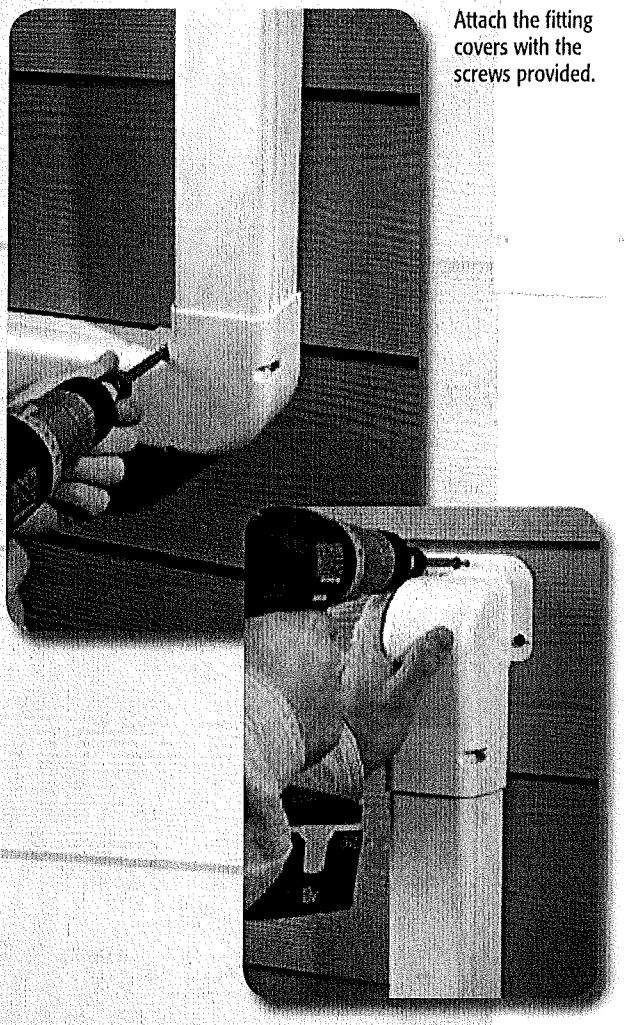


Step 4

Attach the SpeediChannel™ to the base.



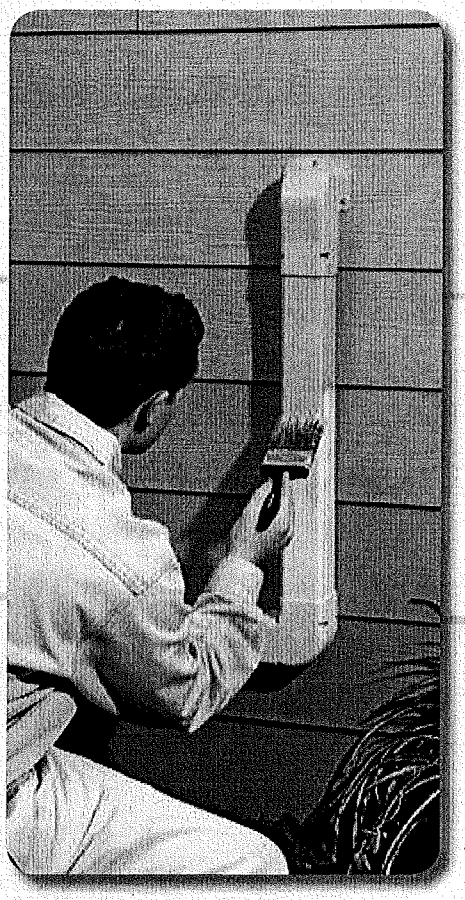
Step 5



Attach the fitting covers with the screws provided.

Step 6

When complete, paint the Speedi-Channel™ to match surface of installation (if desired).



DiversiTech SpeediChannel™ System

SIZING CHART AND SELECTION INFORMATION

Maximum Line Set, Drain Pipe, and Cable Capacity using 3/8" Insulation

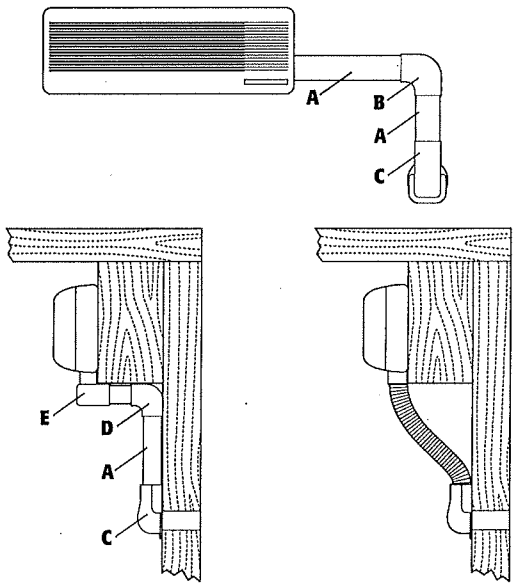
Model	230-D3	230-D4	230-D6
Dimensions	3" x 2-1/2"	4" x 2-3/4"	6" x 3"
Length	78"	78"	78"

Mini Split Systems – Liquid and Suction Line with 3/8" Insulation

Liquid Line	3/8"	2 x 1/4"	1 x 1/4" + 2 x 3/8"
Suction Line	5/8"	2 x 3/8"	1 x 1/2" + 2 x 5/8"
Drain Hose	3/4" OD	2 x 3/4" OD	3 x 3/4" OD
Power Cable	1 x UF 14-3	2 x 1/2" SealTite	3 x 1/2" SealTite
Control Cable	1 Pair 18 AWG	2 Pairs 18 AWG	3 Pairs 18 AWG
Nominal Tonnage	1–3 Tons	1x3 Ton or 2x1 Ton	1x3 Ton or 2x2 Ton

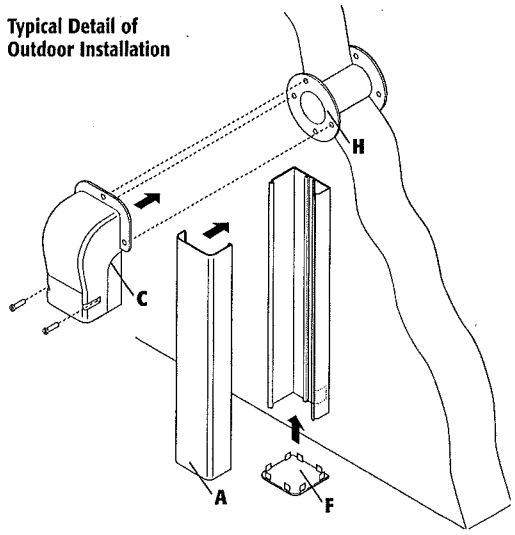
Conventional Split Systems – Liquid Line Plain, Suction Line with 3/8" Insulation

Liquid Line	3/8"	3/8"	3/8"
Suction Line	3/4" or 7/8"	1-1/8"	1-1/8"
Drain Hose	3/4" PVC	3/4" PVC	3/4" PVC
Power Cable	1 x UF 14-2	1 x 1/2" SealTite	1 x 1/2" SealTite
Control Cable	1 Pair 18 AWG	1 Pair 18 AWG	1 Pair 18 AWG
Nominal Tonnage	Up to 3.5 Tons	4–5 Tons	7.5 Tons and up

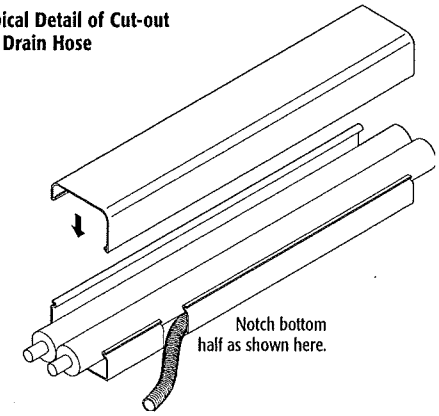


Typical Detail of Indoor Installation

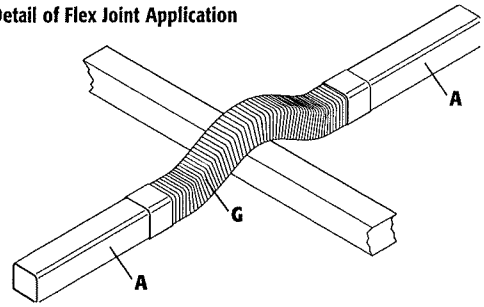
Typical Detail of Outdoor Installation



Typical Detail of Cut-out for Drain Hose



Typical Detail of Flex Joint Application



A - 230-D
B - 230-FB
C - 230-WC
D - 230-EB
E - 230-EIN
F - 230-DC
G - 230-FJ
H - 230-WS2

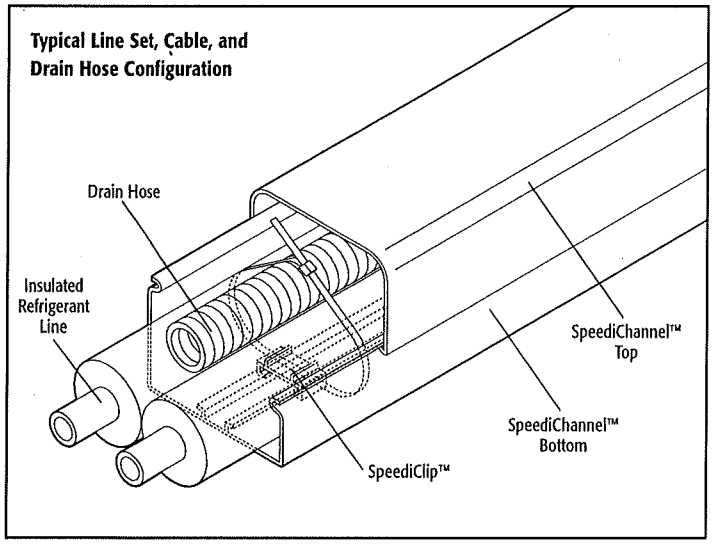
NOTE:
Suffix parts A-G with the duct size needed (3,4, or 6)

DiversiTech SpeediChannel™ System

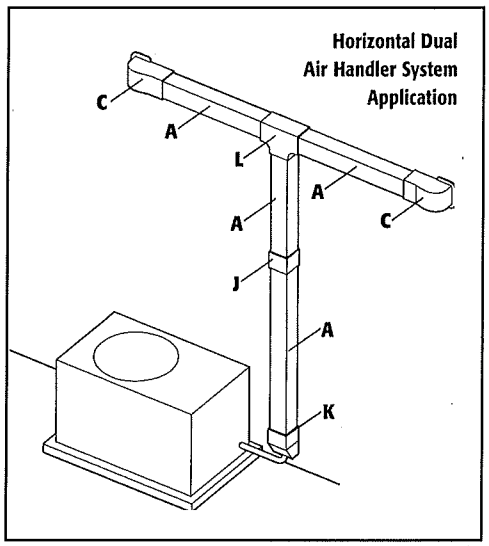
TECHNICAL SPECIFICATIONS

Color	Natural
Size	**230-D3:** 3" x 2-1/2" OD **230-D4:** 4" x 2-3/4" OD **230-D6:** 6" x 3-1/8" OD **Standard Length:** 78"
Material	Weather Resistant PVC, UV Stabilized and Fire Resistant
Fire Rating	Meets UL 94V.-0
Temperature Range	-4°F TO 140°F
Weather Resistance	Tested to over 2,000 hours
Fixing Screws	Stainless Steel

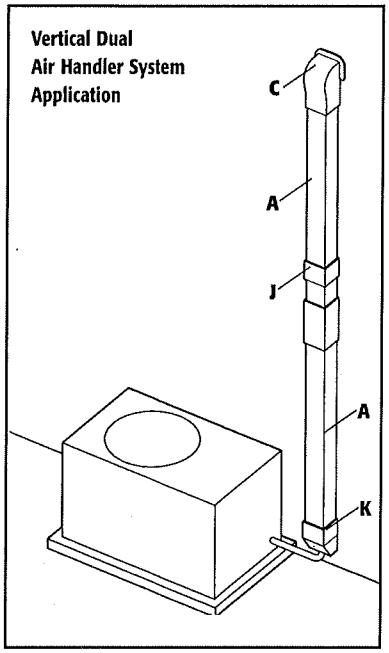
Typical Line Set, Cable, and Drain Hose Configuration



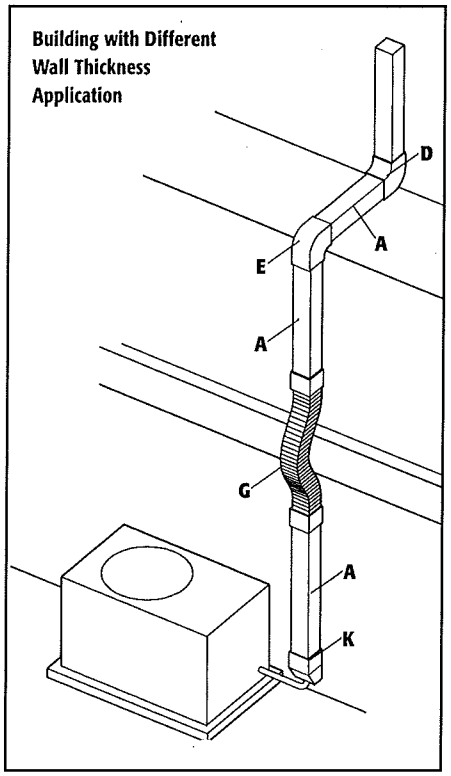
Horizontal Dual Air Handler System Application



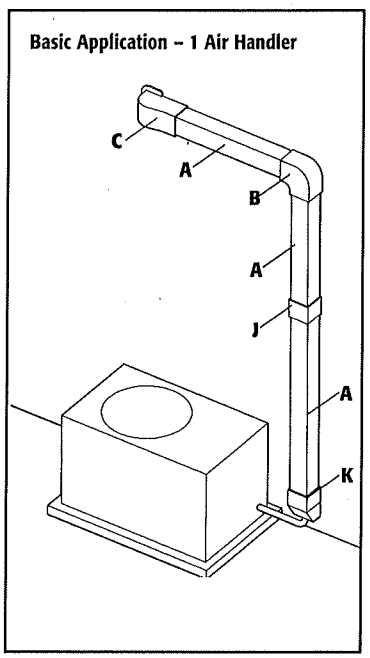
Vertical Dual Air Handler System Application



Building with Different Wall Thickness Application



Basic Application – 1 Air Handler



A - 230-D
B - 230-FB
C - 230-WC
D - 230-EB
E - 230-EIN
F - 230-DC
G - 230-FJ
H - 230-WS2
J - 230-CP
K - 230-DE
L - 230-TC

NOTE:
Suffix parts A-G with the duct size needed (3,4, or 6)

6 July, 2011

Kate Reilly
Saint Paul Planning Commission
25 West Fourth Street, Suite 1400
Saint Paul, MN 5102

To the Commission:

Thank you for taking my comments! At a recent meeting of Solar Minnesota, the proposed changes to the zoning code were discussed, and several concerns were voiced. It was agreed that those of us who could would attend the hearing on July 8th. As I am out of town all week, I am sending written comments instead of attending.

The first concern I would like to mention is the "visual impact" addressed in Section 63.110: Building Design Standards. Although it may not be intentional, there seems to be an underlying assumption that solar panels are unsightly. While most of us would agree that some installations of solar panels can detract from the viewscape, this is more a matter of how the panels are deployed, and how much consideration is given to how they fit into the surrounding space. It is not an intrinsic characteristic of solar panels!

Furthermore, a determination of what is nice-looking or not, is an extremely subjective matter, and no description on paper is going to reduce controversy. Indeed, over the past twenty years I have watched public attitudes toward solar go from very negative to slightly positive, and getting more so all the time as people see utility and government use of solar energy increase. I would suggest that rather than focusing on a description to try and please everybody about what solar installations should look like, we should talk about a process which seems fair and has appropriate opportunities for engagement with the solar community.

We also have concerns about the limitation of roof-mounted solar panels to the height of the roof ridge. This may be appropriate in many cases, but not in others. So again this brings me to questions about HOW the zoning will be used. What will be the process for establishing the relevant height restrictions in cases which merit further consideration – what input does the solar designer, or indeed the solar community have? I know of cases where if the project design doesn't meet all zoning criteria, it is flatly turned down, and I think that has been a mis-use of the zoning code where this has occurred. I would hope that if a solar project doesn't meet the zoning criteria, that then there would be a process for coming to agreement on how to move forward.

Anyways, thanks for taking my comments!

Ralph Jacobson
Owner, Innovative Power Systems, Inc.
President, Minnesota Solar Energy Industries Association
Member, Minnesota Renewable Energy Society

7 June 2011

Michael Russelle
1480 Chelmsford Street
Saint Paul, MN 55108

Saint Paul Planning Commission
25 West Fourth Street
Saint Paul, MN 55102

Members of the Saint Paul Planning Commission:

I am unable to attend the hearing on 8 June but provide these written comments for your consideration of the proposed amendments to Chapters 63 and 65 of the Saint Paul Zoning Code, pertaining to solar energy systems.

Unfortunately, no background information, engineering or aesthetic justification, or intent of the amendments was provided. To obtain thoughtful input from the citizens and residents of the City, I recommend such information be provided in future. My apologies to you if I have misinterpreted the intent of the amendments.

As a general policy, I recommend that St. Paul support installation of distributed energy generation systems. We not only need to conserve energy and reduce our use of fossil fuels, but we should support, in as many ways as possible, the installation of renewable means of heat and power production. Minnesota can and should develop solar electricity and heating as two components of this effort.

There are anecdotal reports that indicate solar panels are undesirable in the city – I have heard 'ugly' used by one person, who had decided not to install them on a house being built with excellent southern exposure, an unusual situation in established residential areas. That is a lost opportunity for us to meet the challenges we face as a city, a state, and a globe. Solar hot water panels have been embraced in many cities in Brazil and in historic districts in Italy and Spain. I have seen both photovoltaic panels and hot water panels on buildings in the Swiss alps, where the building codes are strictly enforced to maintain traditional appearances.

Aesthetics are not permanent, whereas the depletion of fossil fuel resources and their increasing impact on global climate disruption are, for all practical purposes. Our City should be engaged in changing that aesthetic, rather than hindering the radical changes we should and need to make. It is vastly preferable for us to transition our society with a plan and vision in mind, than to react to extreme conditions.

How does the City propose that screening be applied to reduce the visual impact of, say solar hot water panels mounted on a residential building? Why would the City do so? As

more systems are installed and are visible to passers by, the more acceptable they will become. Adoption of energy conservation measures is incremental for most people. Our building codes should facilitate adoption of these more advanced and expensive measures.

Instead, the proposed amendments, as I read them, establish direct impediments to fulfilling the recommendations from the National Renewable Energy Laboratory (Jason Coughlin presentation to the Minnesota State Legislature, October 2009). Their recommendations for creating a "solar-friendly environment" in Minnesota were to:

- Implement "**Solar-Ready**" building codes
- Revise **building codes and standards**, with input from the solar community, to increase the use of best practices in solar installations.
- **Streamline** and standardize the permitting process within and across jurisdictions
- Reduce or eliminate **solar permit fees**, particular for small installations
- Pass **solar access** ordinances
- Prevent **Home Owner Associations** from discriminating against solar installations.
- Educate **building code officials** about solar
- Create policies to allow solar on **historic buildings** while still preserving the integrity of such sites.

(slightly adapted from slide 22 of that presentation with their emphasis retained; available at http://www.stpaul.gov/DocumentView.aspx?DID=10587).

The Planning Commission should amend the codes to advance the goals of Sustainable Saint Paul and in particular the activities listed on the City's Energy and Energy Conservation website (http://www.stpaul.gov/index.aspx?NID=498). I urge the Planning Commission to thoroughly reconsider their approach to solar photovoltaic and hot water installations.

Thank you,
[s] Michael Russelle

Kate Reilly - Comments on zoning for solar systems

From: Daniel Williams <dan.williams@powerfullygreen.com>
To: <kate.reilly@ci.stpaul.mn.us>
Date: 7/11/2011 10:08 AM
Subject: Comments on zoning for solar systems
CC: Rebecca Lundberg <rebecca.lundberg@powerfullygreen.com>, Ralph Jacobson ...
Attachments: IMG_0644.JPG

Attention: Kate Reilly

Saint Paul Planning Commission

25 West Fourth Street, Suite 1400

Saint Paul, MN 5102

Hello,

I attended Friday's hearing and was also asked to submit my comments in writing.

There were three areas of the zoning code addressed.

63.110 section (e)

Visual impact of rooftop equipment. My comments first ventured into wanting a continuing discussion on zoning as solar is an evolving technology and decisions today are typically made on what happened in the past and do not necessarily reflect on what is possible or may be possible in the very near future. I noted that the technical change of adding "visual impact" and the deletion of one word from the first sentence "mechanical" made a grey area for electrical conduit runs and solar piping runs if necessary on the outside of a building. I also noted that in residential and commercial areas there already exists electrical conduit runs and rain gutters and that the additional runs if necessary to be on the facade during an installation could in fact look very similar to what already exists.

Additionally the second instance of the word "mechanical" in the third sentence seemed to only reflect on ductwork and therefore did not include Solar PV or Solar Hot Water in its exclusion.

65.921 section (a)

I talked about the necessity of meeting program guidelines for receiving the latest round of state rebates and utility incentives. In order to achieve this sometimes solar pv panels are mounted on stand-offs to face south, typically when installed on a garage roof near the alley. I asked that some creative thinking, variance or forgiveness be used when and installation may go above the ridge line to achieve good performance and to meet current incentive requirements.

I've included a photo (IMG_0644.JPG) to illustrate what a stand-off could look like on a garage in an alley.

65.921 section (b)

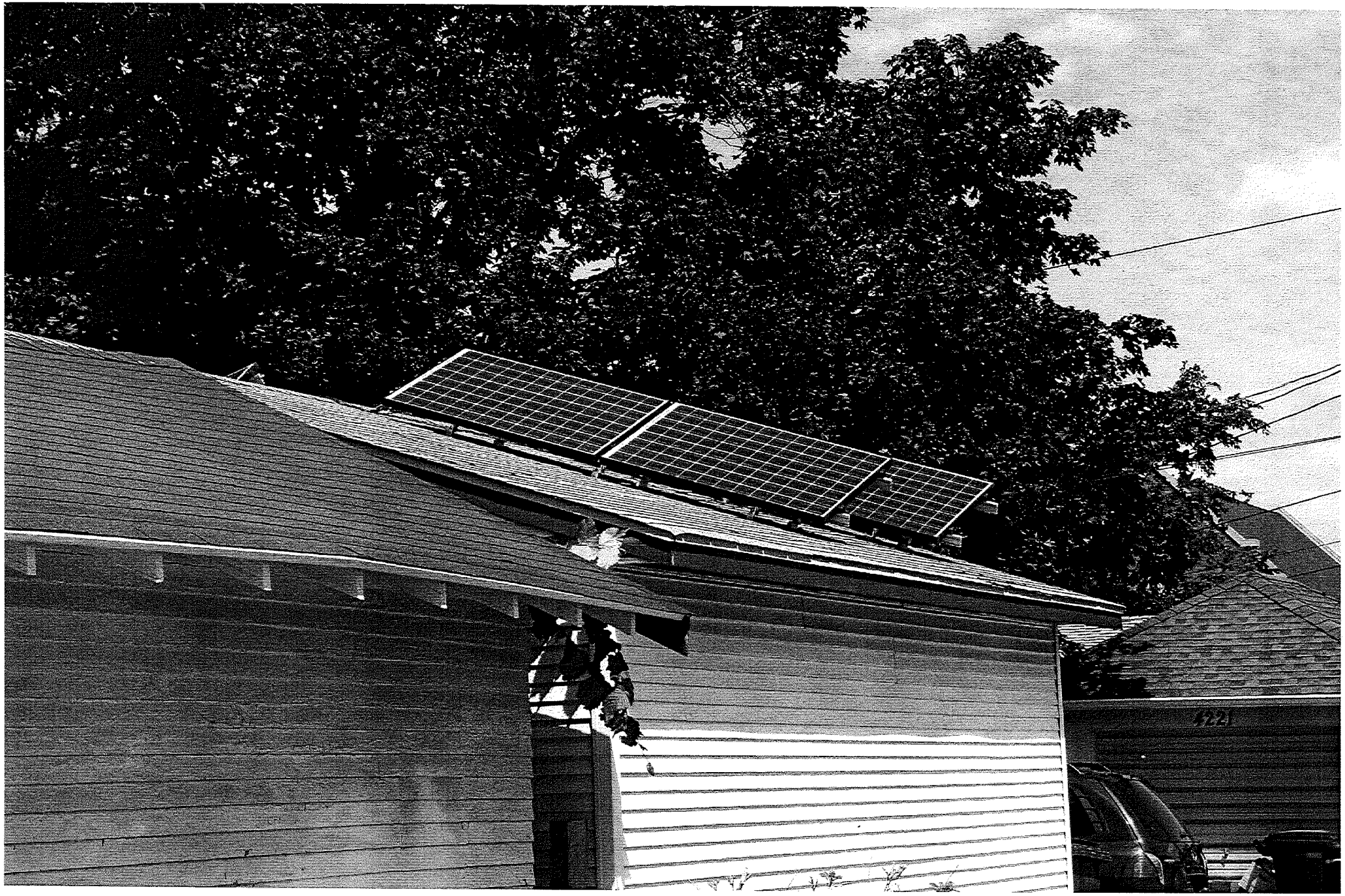
In regard to free-standing systems, I mentioned with advent of the coming of electric vehicles in the very near future, that most people would want to install systems on their garages or next to their garages on a "solar car-port". People would want the choice to power their car themselves and the current setbacks may infringe on their choices.

If you attend the MN State Fair this year stop in at the Eco Experience in the Progress Center and you can see first-hand two examples solar carports.

Thank you,

Daniel Williams
NABCEP Certified Solar PV Installer - 091110-127
NABCEP PV Technical Sales # PVTS012911-96
Powerfully Green
11451 Oregon Avenue N
Champlin, MN 55316
Ph: 612-990-3213
Fax: 612-605-5748
Email: dan.williams@powerfullygreen.com

"You must be the change you wish to see in the world."
-- Mahatma Gandhi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