Understanding Cut Sheets

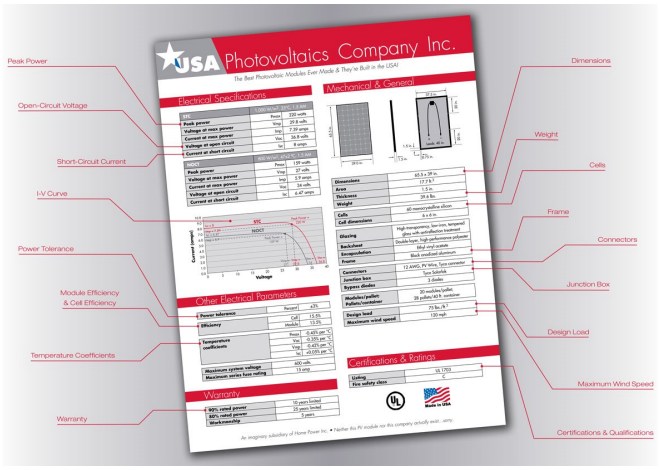
Cut Sheets: Defined

As part of a project's participation in the Multifamily Performance Program (MPP), cut sheets are required to be submitted for each energy conservation measure completed. Details regarding this requirement can be found in the *Inspection Request Documentation Requirements*, included in the MPP Comprehensive Option Guidelines.

A cut sheet, also known as a data sheet, technical data sheet, and/or specification sheet, is a document that summarizes the information and characteristics of a product, material, or piece of equipment. Cut sheets are frequently used in the construction industry to verify that a product will meet the requirements of a project, which are listed in the specifications, design drawings, and/or scope of work. Verifying that the requirements are met is especially important for energy efficiency projects, where energy savings are dependent on the correct products being installed.

Cut sheets are developed by manufacturers and typically list a variety of characteristics about the product, including at least some of the following:

- General Description
- Benefits
- Applications
- Features
- Physical Properties
- Installation Guidelines
- Technical Specifications
- Ratings
- Certifications
- Controls/Settings
- Options
- Sizes
- Models



Example of Solar Photovoltaic cut sheet from manufacturer Photo Courtesy of Home Power Inc.

Where can you find a cut sheet?

They can be found on the manufacture's website, or are often also available through the supplier where the product was purchased. When looking online, look for the Technical Documents, Literature, or Catalogs section of the manufacture or supplier's website. Cut sheets are often only 1-2 pages long and are typically in PDF format.

When should you review cut sheets?

It is strongly recommended that you obtain and review cut sheets from the installing contractor prior to the products being ordered and installed. As a Provider, it is your responsibility to review these cut sheets to confirm that the products proposed will deliver the energy savings projected in the energy audit and energy model. Reviewing cut sheets prior to product ordering and installation will prevent incorrect or otherwise under-performing products from being installed.

Submitting your cut sheet

When submitting a cut sheet as part of an Inspection Request for MPP, be sure that the submittal includes the following information at a minimum:

1. Manufacturer
2. Model Number
3. Any specific features and/or options that were installed
4. Relevant energy rating information.

See Appendix A for a list of energy conservation measures and the relevant energy rating information that NYSERDA expects find on the cut sheet

Identify and specify options on your cut sheet

Since cut sheets often provide information on multiple options and/or models in the same document, you are required to mark the cut sheet in a way that clearly shows exactly which options and/or model(s) were installed. This can be done by marking up a hard copy and scanning it (see Figure 1 below), or by using a PDF editing software (see Figure 2 below). Be sure to provide enough detail as is necessary for the reviewer to understand exactly which products were installed and the related energy rating information for each. If the cut sheet does not provide all the relevant information, additional documentation should be provided, such as a product catalog, installation instructions, and/or other literature from the manufacturer.

TABLE 1: Sizes and R-Values for TUFF-R™ Commercial and Super TUFF-R™ Commercial Insulation

Nominal Board Thickness[1] (in.)	R-Value	
	TUFF-R™	Super TUFF-R™
1.0	6.5	6.5
1.5	9.8	9.8
1.75	N/A	11.4
2.0	13.0	13.0

(2) sheets of 1.0" Tuff-R installed for a total R-13

(1) Not all product sizes are available in all regions.

(2) R means resistance to heat flow. The higher the R-value, the greater the insulating power. R-values are expressed in $ft^2 \cdot h \cdot °F/Btu$. R-value determined by ASTM C518.

Figure 1: Example of energy rating information from insulation cut sheet with total amount of insulation installed identified. Cut sheet was printed, marked by hand, and then scanned.

Boiler Ratings

Model	Min Input MBH	Max Input MBH	Max Output[a] MBH	Efficiency Range	Efficiency 80° to 180°F
BMK 750	50	750	653-720	87%-98%	95.50%
BMK 1000	50	1000	870-960	87%-98%	96.80%
BMK 1500	75	1500	1305-1425	87%-98%	94.60%
BMK 2000	100	2000	1740-1900	87%-98%	94.60%
BMK 2500	167	2500	2175-2360	87%-98%	93.50%
BMK 3000	200	3000	2610-2880	87%-98%	93.50%
BMK 5000**	400	5000	4350-4800	87%-98%	93.90%
BMK 6000**	400	6000	5220-5670	87%-98%	94.50%

[a]Max output dependent upon application – see efficiency curves

**See separate BMK5000/6000 technical data sheet for additional BMK5000/6000 details

Figure 2: Example of energy rating information from a boiler cut sheet with the model of installed equipment clearly identified. PDF editing software was used to circle the model.

Appendix A . Energy Rating included in Cut Sheet

ECM	"Energy Rating" info Required	Notes
Air Sealing	None	Product installed might be caulk, tape, foam, or sheet good. If a cut sheet is not available, obtain the user and/or installation manual for any product installed.
Boiler, Replace (Central)	Input capacity, efficiency (thermal efficiency or AFUE)	If condensing boiler is installed, confirm outdoor reset control settings and submit documentation of set-points.
Boiler, Replace (In-Unit)	Input capacity, efficiency (thermal efficiency or AFUE)	If condensing boiler is installed, confirm outdoor reset control settings and submit documentation of set-points.
Burner, Replace	Input capacity, efficiency (thermal efficiency or AFUE)	
Central AC/HP	Input capacity, efficiency (COP, SEER, or EER)	
Chiller, Replace	Input capacity, efficiency (COP, kW/ton, EER and IPLV)	
Constant Airflow Regulators, Install	Airflow in CFM, static pressure operating range	
Controls	None	Confirm control settings and submit documentation of set-points.
DHW Tank, Insulate	R-value and/or thermal conductivity	
Dishwasher, Install Energy Star	kWh/yr, gallons/cycle, Energy Star label	
Distribution System, Upgrade	None	Typically includes replacing steam traps or air vents; cut sheet needs to show manufacture and model installed.
Duct Sealing	None	Product installed might be caulk, tape, foam, or spray-on sealant. If a cut sheet is not available, obtain the user and/or installation manual for any product installed.
Economizer, Install	None	Confirm control settings and submit documentation of set-points.
Elevator Motors and Controls, Upgrade	Motor size, motor efficiency, drive type, control type	
Energy Management System (EMS), Install	None	Confirm control settings and submit documentation of set-points.
Exhaust Fan Demand Control	Control type (CO, CO_2, or humidity)	Confirm control settings and submit documentation of set-points.
Exhaust Fans, Replace	Motor size, motor efficiency, fan efficiency, fan CFM	
Exterior Doors, Replace	R-value	

Appendix A . Energy Rating included in Cut Sheet

ECM	"Energy Rating" info Required	Notes
Exterior Doors, Replace	R-value	
Exterior Lighting, Upgrade	Power consumption (watts), lumens/watt	
Fan/Air Handlers, Upgrade	Motor efficiency, fan CFM	
Furnace, Replace	Input capacity, steady state efficiency, and AFUE	
Gas-fired Dryers, Replace Electric	Energy Star label and the Combined Energy Factor	
Geothermal	COP	
Heat/Energy Recovery	Capacity and Efficiency	
High Efficiency Fluores-cent, Apartment, Install	Power consumption (watts), lumens/watt	Energy Star or Design Lights Consortium's Qualified; if neither qualification applies, then LM-79 and LM-80 test data must be submitted.
High Efficiency Fluores-cent, Common Area, Install	Power consumption (watts), lumens/watt	Energy Star or Design Lights Consortium's Qualified; if neither qualification applies, then LM-79 and LM-80 test data must be submitted.
Insulation, Above Grade Walls	R-value	
Insulation, Below Grade Walls	R-value	
Insulation, Other Shell	R-value	
Insulation, Roof Deck or Attic	R-value	
Insulation, Slab	R-value	
LED Exit Signs	Power consumption (watts)	
LED Fixtures and Screw-Ins	Power consumption (watts), lumens/watt	Energy Star or Design Lights Consortium's Qualified, if neither qualification applies, then LM-79 and LM-80 test data must be submitted.
Low-flow Devices	GPM	
Motors, Install NEMA Premium Efficiency	Motor size, efficiency, NEMA Premium rating	NEMA Premium rating only applies to motors 1 HP or larger

Appendix A . Energy Rating included in Cut Sheet

ECM	"Energy Rating" info Required	Notes
Other Appliances, Install Energy Star	kWh/yr, Energy Star label	
Outdoor Reset Control, Install	None	Confirm outdoor reset control settings and submit documentation of set-points.
Photovoltaic System	DC or AC power output (watts/panel)	
Piping, DHW, Insulate	R-value and/or thermal conductivity	
Piping, Heating, Insulate	R-value and/or thermal conductivity	
Programmable Thermo-stats, Common Area	None	Confirm control settings and submit documentation of set-points.
Pumps, Upgrade	Motor size, GPM, motor efficiency, NEMA Pre-mium rating	NEMA Premium rating only applies to motors 1 HP or larger
Refrigerators, install Energy Star	kWh/year, Energy Star label	
Replace DHW Heater (Central)	Input capacity, tank volume, steady state efficiency and/or Energy Factor	Energy Star label if applicable.
Replace DHW Heater (In-Unit)	Input capacity, tank volume, steady state efficiency and/or Energy Factor	Energy Star label if applicable.
Replace DHW Indirect-fired Heater	Tank size, R-value, thermal efficiency of heating system	
Smoke-Driven Louver, Install	None	
Solar Hot Water	Solar Energy Factor and Solar Fraction	
Split System AC/HP	Capacity, SEER, Heat-ing Seasonal Perfor-mance Factor	
Steam Traps, Replace	None	Cut sheet should show manufacturer and model installed.
Submetering	None	Cut sheet should show manufacturer and model installed.

Appendix A . Energy Rating included in Cut Sheet

ECM	"Energy Rating" info Required	Notes
Thermostatic Radiator Valves, Install	None	Cut sheet should show manufacturer and model installed.
Timers/Sensors, Install	None	Confirm control settings and submit documentation of set-points.
Variable Speed Drive	None	Confirm control settings and submit documentation of set-points.
Ventilation Central Controls	None	Confirm control settings and submit documentation of set-points.
Vertical Shafts, Seal	None	Product installed might be caulk, tape, foam, or spray on sealant. If a cut sheet is not available, obtain the user and/or installation manual for any product installed.
Washing Machines, Install Energy Star	Modified Energy Factor, Water Factor, Energy Star label	
Water Source AC/HP	Capacity, COP, and EER	
Wind Turbine	Capacity	
Window AC, Install	Capacity, EER, Energy Star label	
Windows, Replace	U-value, Solar Heat Gain Coefficient, Air Leakage, Energy Star label	
Windows, Weatherstrip or Airseal	None	Product installed might be caulk, tape, or foam. If a cut sheet is not available, obtain the user and/or installation manual.