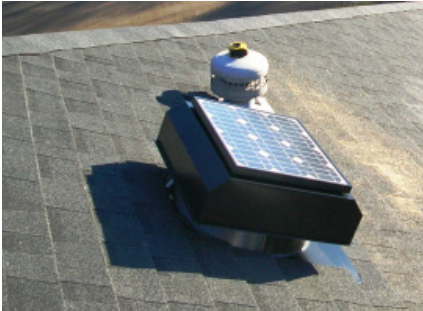




Mantua Square Solar Photovoltaic Installation

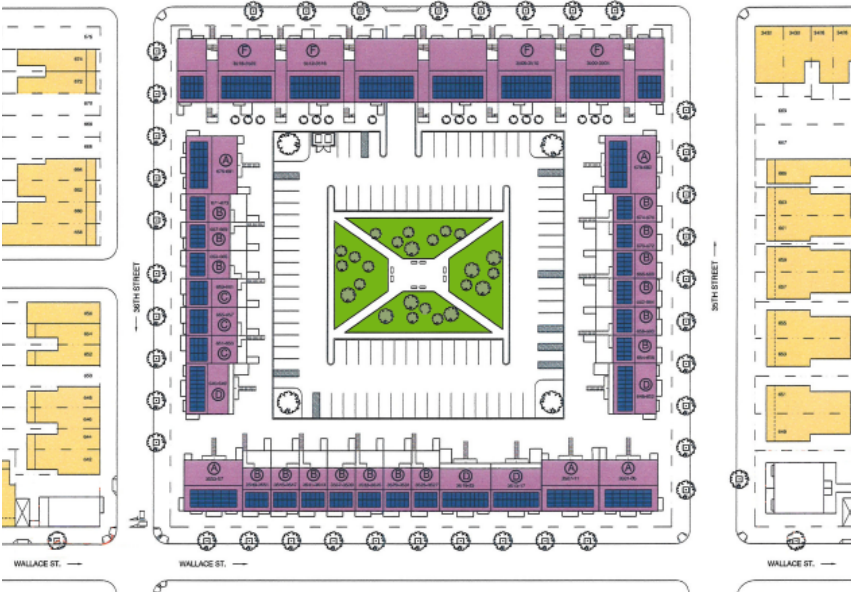
Philadelphia, PA



Solar Powered Elevator Shaft Vent Fan

CLIENT:
Philadelphia Housing Authority

KSK provided complete architectural and engineering services for Mantua Square, a development of 100 rental apartments surrounding private secure parking and a landscaped park. The development, which occupies a full city block, replaced the former Mantua Hall high-rise public housing project. The development incorporates roof-mounted solar photovoltaic arrays installed on the south and west facing slopes of the pitched roofs. The 139KW arrays produce 156,000KW to annually, and provides annual electrical cost savings of over \$42,000.



Solar Photovoltaic

Mantua Green Initiatives Included in this Project:

- Solar Photovoltaics
- Energy Star Windows
- Energy Star Equipment and Appliances
- Tight Building Envelope
- Cross Ventilation
- Low VOC Interior Finishes
- Native Landscaping Materials
- Solar Powered elevator shaft vent fan
- Low Flow Plumbing Fixtures
- Compact Fluorescent Light Fixtures
- Efficient HVAC Systems
- Onsite Rainwater Management



Courtyard



On-Site Stormwater Management



Mantua Square Solar Photovoltaic Installation

Philadelphia, PA



Solar Powered Elevator Shaft Vent Fan



On-Site Stormwater Management



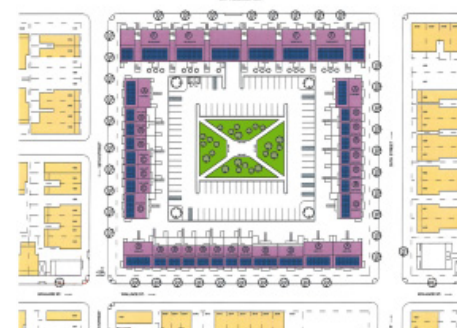
courtyard

CLIENT:
Philadelphia Housing Authority

KSK provided complete architectural and engineering services for Mantua Square, a development of 100 rental apartments surrounding private secure parking and a landscaped park. The development, which occupies a full city block, replaced the former Mantua Hall high-rise public housing project. The development incorporates roof-mounted solar photovoltaic arrays installed on the south and west facing slopes of the pitched roofs. The 139KW arrays produce 156,000KW to annually, and provides annual electrical cost savings of over \$42,000.

Mantua Green Initiatives Included in this Project:

- Solar Photovoltaics
- Energy Star Windows
- Energy Star Equipment and Appliances
- Tight Building Envelope
- Cross Ventilation
- Low VOC Interior Finishes
- Native Landscaping Materials
- Solar Powered elevator shaft vent fan
- Low Flow Plumbing Fixtures
- Compact Fluorescent Light Fixtures
- Efficient HVAC Systems
- Onsite Rainwater Management



System	Initial Cost	Annual Cost Savings Per Unit (Average)	Total Annual Cost Savings (Average)	Base Annual Cost Per Unit (Average)	% Savings	Payback Period	GNP
139 KW Solar Photovoltaic Centralized Backfeed/Common Areas	\$800,000	NA	\$74,228	NA	NA	11 years	NA
139 KW Solar Photovoltaic Per Individual Unit (101 units)	\$1,052,500	\$589	\$54,228	\$2,500 (total electric)	24% (electric)	18 years	\$252,500
250 KW Solar Photovoltaic Per Individual Unit (101 units)* ¹	\$1,739,249	\$966	\$97,532	\$2,500 (total electric)	39% (total electric)	18 years	\$939,269
101 Individual Unit Solar Domestic Hot Water	\$1,357,840	\$650	\$65,650	\$900 (hot water)	72% (hot water only)	21 years	\$1,357,840

*¹ May not be physically feasible, because of roof space/pitch.