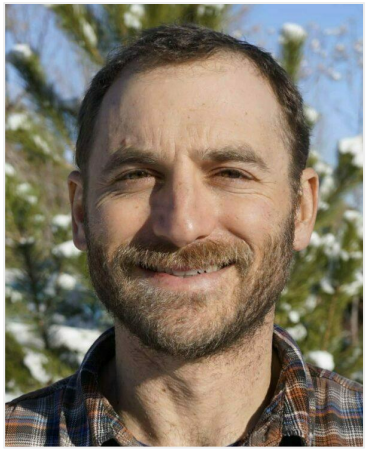
RESOURCE INNOVATION INSTITUTE

TIP CLIP:

Building Envelope: Sealing & Insulating

With Josh Holleb Ceres Greenhouse Solutions

Tip Clip Faculty: Josh Holleb



Josh Holleb

Solutions Architect

Ceres Greenhouse Solutions

CERES GREENHOUSE SOLUTIONS®

Advantages of Sealed & Insulated Greenhouses

- Greater Climate Control
- Pest Control
- Odor Control
- No Cross-Pollination
- Energy Efficiency
- CO_2 Conservation
- Manage Extreme Temperatures

Covering Types & Considerations

Table 6: Greenhouse Covering Types

Covering Type	R-Value (°F/hr.Btu.ft²)	U-Factor (Btu.ft².hr/°F)	Visible Light Transmissivity (VT)	Cost / Square Foot ($USD/sf)	Useful Life (Years)
Marlon ST, Five Wall, 25 mm	3.57	0.28	68%		
Polycarbonate, Five Wall, 25 mm	3.26	0.31	60%	$8.00	10 -15
Polycarbonate, Triple Wall, 8 mm	2.0	0.50	74 - 78%	$4.00	10 -15
Double-Pane Storm Windows	2.0	0.50	78%	$6.00	25+
Polyethylene film, Double, with IR	2.0	0.50	78%	$0.25	3 - 4
Polycarbonate, Double Wall, 10 mm	1.89	0.53	80%	$2.50	15
Acrylic, Double	1.79	0.56	84%		30+
Polycarbonate, Double Wall, 6 mm	1.54	0.65	82%	$1.54	10 -15
Polycarbonate, Double Wall, 4 mm	1.43	0.70	83%	$1.50	10 -15
Glass, Double Pane	1.43	0.70	75 - 80%	$6.00	25+
Polyethylene film, Double	1.43	0.70	85%	$0.18	3 -4
ETFE, Ethelyne Tetrafluoroethelyne	1.4	.71	88%		