

Heating the Midwest Conference Outline

Adopting Renewable Biomass Heat: Investing in Tomorrow's Sustainable Communities



Day 1: Tuesday, October 11, 2016

- FIELD TOUR: **Get Out and Kick the Tires** (8:00 a.m. – 4:00 p.m.)
 - Messersmith Manufacturing Plant
 - Verso Corporation CHP Boiler (pending)
 - Pinecrest Medical Care Facility
 - North Central Area School
 - Commercial Logging Job (pending)
- Vendor Reception (6:00 p.m.)

Day 2: Wednesday, October 12, 2016 – Vendor Expo Open (8 a.m. - 6 p.m.)

- MORNING PLENARY: **Breaking Through Market Barriers** (8:30 a.m. – 12 p.m.)
 - Opening Remarks – *Bill Cook*
 - Welcome to Michigan – *Dave Nyberg*
 - Keynote – Regional impacts of advanced wood heat in New England – *Maura Adams*
 - What does the public hear when we say “wood energy?” – *Sarah Mittlefehldt*
 - What reactions have Michigan communities had to wood energy? – *Stephen Gasteyer*
 - What motivates consumers to buy advanced wood heating systems? – *Jenni Cathcart*
 - How can we create and expand markets for advanced wood heating? – *Matt Birbeck*
- AFTERNOON BREAKOUT SESSION: **In the Clouds With Decision Makers and Developers** (1:00 p.m. – 5:00 p.m.)
 - Panel: Way beyond your grandfather’s wood stove. *Bill Cook (moderator)*
What exactly is “advanced wood heat?” Listen to the stories successful users tell.
 - Advanced wood heat demystified – *Mark Knaebe*
 - Success story #1 – health care (Pinecrest) – *Dave Vandermissen*
 - Success story #2 – rural school (North Dickinson) – *Darrell Oman*
 - Success story #3 – complex (MTU-Ford Forestry Center) – *Andy Burton*
 - Panel: Going beyond the backyard wood pile. – *Scott Sanford – UW-Madison (moderator)*
Innovations in obtaining secure, reliable, sustainable, and affordable wood supplies.
 - Securing reliable, sustainable, affordable fuel supplies (understanding the upstream portion of the wood supply chain) – *Wayne Stanley*
 - Innovations in the wood supply chain (creative opportunities in the downstream portion of the wood supply chain) – *Brett Hogarth*
 - Connecting sellers with buyers – *Dave Neumann*
 - Panel: Finding the value beyond the BTU. – *Brian Brashaw (moderator)*
Advanced wood energy has other values to the user, the community, the region, and the world.
 - Healthy forests, industries, and communities (15 min) – *Brian Brashaw*
 - Combined Heat & Power (10 min) – *Tom Wilson*
 - Biomass Cooling (10 min) – *Michael Sparby*
 - Clear Skies, Blue Water, and Green Carbon – *Kathy Halvorsen*
 - Panel: Incentivizing and financing the future. – *Nan Larson (moderator)*
Creating the policy and finance climate needed for success.
 - Raising capital – *Dennis West*
 - Incentive programs, grants, & loans – *Jim Yoder*
 - Policy successes and failures – *Tim Baye*

AFTERNOON WORKSHOP: In the Trenches with System Designers and Installers

A two-part (afternoon & evening) technical workshop will be available for those who want to learn the nuts and bolts of designing and installing advanced wood hydronic heating systems. **Additional registration fees are required for this workshop.**

PART 1: System Design for Wood-based Biomass Heating Systems (1:00 p.m. – 4:30 p.m.)

When hydronic-based biomass heating systems are designed, there is often more attention focused on the boiler and less on the remainder of the system. This can lead to disappointing results. This session discusses the operating characteristics of biomass boilers and then focuses on how to balance whole systems to complement those characteristics. It examines piping, pumping, distribution system design, and heat emitter characteristics, all of which can be orchestrated for optimal system performance.

- ✓ Operating characteristics of modern cordwood gasification boilers
- ✓ Boiler anti-condensation options
- ✓ Proper venting practices
- ✓ Outdoor reset control strategies
- ✓ Application of high efficiency circulators
- ✓ Mixing options for supply water to distribution system
- ✓ Preferred low temperature heat emitter options
- ✓ Prevent negative energy flow
- ✓ Creating combi-system for heating and domestic hot water production
- ✓ Integration with conventional boilers
- ✓ “Lessons learned” for previous systems

PART 2: Thermal Storage for Wood-based Biomass Heating Systems (6:00 p.m. – 9:30 p.m.)

This session focusses on water-based thermal storage as an integral part of most (but not all) wood-based biomass heating systems. It discusses why thermal storage is needed and cases where it may not be needed. It stresses details that enhance temperature stratification and allow for maximum utilization of stored energy. It examines potential problems and how to avoid them.

- ✓ When is thermal storage needed, and NOT needed
- ✓ Unpressurized versus pressurized tank options
- ✓ Importance of temperature stratification
- ✓ 2-pipe versus 4-pipe tank configurations
- ✓ Sizing thermal storage for biomass boiler systems
- ✓ Stratification enhancement strategies
- ✓ Multiple storage tank systems
- ✓ Performance comparison using high temperature and low temperature distribution systems
- ✓ Integrating “on demand” domestic water heating from thermal storage
- ✓ Tank insulation and heat loss
- ✓ “Lessons learned” for previous systems

About the Workshop Instructor...

John Siegenthaler, P.E., is a mechanical engineering graduate of Rensselaer Polytechnic Institute, a licensed professional engineer, and Professor Emeritus of Engineering Technology at Mohawk Valley Community College. "Siggy" has over 35 years of experience in designing modern hydronic heating systems. He is a hall-of-fame member of the Radiant Panel Association, and a presenter at national and international conferences on hydronic and radiant heating. John is principal of Appropriate Designs - a consulting engineering firm in Holland Patent, NY. The 3rd edition of his textbook - Modern Hydronic Heating was released in 2011. John currently writes about hydronics and heating system design using renewable energy heat sources for several trade publications including: Plumbing & Mechanical, PM Engineer, The NEWS, Supply House Times, and Heating, Plumbing, Air Conditioning (HPAC) in Canada.

Day 3: Thursday, October 13, 2016

- MORNING PLENARY: **Defeating the Biomass Blues** Vendor Expo Open (8:00 a.m. – 12 p.m.)
 - How far have we already come, and where do we go next? Realizing a sustainable advanced biomass thermal industry. – *Charlie Niebling*
 - Tell us what keeps you up at night? And, what gives you hope for the future?
 - National Updates Panel – what is happening in congress, agencies, and national associations?
 - USFS – *Julie Tucker*
 - BTEC – *Jeff Serfass*
 - Biomass International – *Tim Portz*
 - Alliance for Green Heat – *John Ackerly*
 - State Updates Panel – what is happening in the Midwestern states?
 - MI – *Bill Cook (with Stephen Gasteyer)*
 - WI – *Scott Sanford (with Tim Baye, Clint Fandrich)*
 - MN – *Mark Lindquist / Next Generation Energy Board*
 - Closing Remarks – *T.J. Morice*