DRAFT

TECHNICAL COMMITTEE 6.2, DISTRICT ENERGY

2020 Winter Meeting

February 2, 2020

Note: These draft minutes have not been approved and not the official, approved record until approved by the Technical Committee.
## TC/TG/MTG/TRG MINUTES COVER SHEET

(Minutes of all Meetings are to be distributed to all persons listed below within 60 days following the meeting.)

<table>
<thead>
<tr>
<th>TC/TG/MTG/TRG No.</th>
<th>DATE</th>
<th>TC/TG/MTG/TRG TITLE</th>
<th>TC/TG/MTG/TRG TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.2</td>
<td>2020-02-03</td>
<td>District Energy</td>
<td></td>
</tr>
</tbody>
</table>

### DATE OF MEETING

<table>
<thead>
<tr>
<th>DATE OF MEETING</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020-02-02</td>
<td>Orlando, FLA</td>
</tr>
</tbody>
</table>

### MEMBERS PRESENT

<table>
<thead>
<tr>
<th>NAME</th>
<th>YEAR APPTD</th>
<th>MEMBERS ABSENT</th>
<th>YEAR APPTD</th>
<th>EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alan Neely (Chair)</td>
<td>2017-07-01</td>
<td></td>
<td>2017-07-01</td>
<td>Dawen Lu (Section Head)</td>
</tr>
<tr>
<td>Jessica Mangler (Vice Chair)</td>
<td>2017-07-01</td>
<td></td>
<td></td>
<td>Gary Phetteplace</td>
</tr>
<tr>
<td>Michael Calabrese (Secretary)</td>
<td>2018-07-01</td>
<td></td>
<td></td>
<td>Dragos Paraschiv</td>
</tr>
<tr>
<td>Steve Tredinnick (Handbook)</td>
<td>2017-07-01</td>
<td></td>
<td></td>
<td>Richard Sweetser</td>
</tr>
<tr>
<td>Tim Anderson (Programs)</td>
<td>2018-07-01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daniel Pyewell (Webmaster)</td>
<td>2018-07-01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mohamed Eltaieb Ibrahim (VM)</td>
<td>2019-07-01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geoff Barnes (VM)</td>
<td>2016-07-01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elizabeth Goll (VM)</td>
<td>2019-07-01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jay Eldridge (Non-VM, Research)</td>
<td>2018-07-01</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### DISTRIBUTION: All Members of TC/TG/MTG/TRG plus the following:

- TAC Section Head: Dawen Lu  
  SHx@ashrae.net  
  Where x is the section number

- All Committee Liaisons As Shown On TC/TG/MTG/TRG Rosters (Research, Standards, ALI, etc.)  
  See ASHRAE email alias list for needed addresses.

- Mike Vaughn,  
  Manager Of Research & Technical Services  
  MORTS@ashrae.net
<table>
<thead>
<tr>
<th>Name</th>
<th>Affiliation</th>
<th>E-mail</th>
<th>Member (Voting, Corresponding, or Guest?)</th>
<th>YEA Member? (Yes/No)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alan Neely</td>
<td>Owens Corning – Foamglas Insulation</td>
<td><a href="mailto:Alan.neely@owenscorning.com">Alan.neely@owenscorning.com</a></td>
<td>Voting – Chair</td>
<td>No</td>
</tr>
<tr>
<td>Michael Calabrese</td>
<td>Burns</td>
<td><a href="mailto:mcalabrese@burns-group.com">mcalabrese@burns-group.com</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alan Neely</td>
<td>Owens Corning – Foamglas Insulation</td>
<td><a href="mailto:Alan.neely@owenscorning.com">Alan.neely@owenscorning.com</a></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Mohud Thura</td>
<td>Ashurst</td>
<td>AQR at A Hotmail.com</td>
<td>V</td>
<td>No</td>
</tr>
<tr>
<td>Alan A. Olama</td>
<td>UN RTOC member</td>
<td><a href="mailto:alaaolama@gmail.com">alaaolama@gmail.com</a></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Rich Sweeteren</td>
<td>Excalibur Pantry</td>
<td><a href="mailto:r.sweeteren@excaliburpantry.com">r.sweeteren@excaliburpantry.com</a></td>
<td>Conn</td>
<td>No</td>
</tr>
<tr>
<td>Jim Young</td>
<td>Johns Manville</td>
<td><a href="mailto:jim.youngjr@jm.com">jim.youngjr@jm.com</a></td>
<td>CM</td>
<td>No</td>
</tr>
<tr>
<td>Heather Sharif</td>
<td>Johns Manville</td>
<td><a href="mailto:heather.sharif@jm.com">heather.sharif@jm.com</a></td>
<td>CM</td>
<td>No</td>
</tr>
<tr>
<td>Jay Eldridge</td>
<td>DAIKIN</td>
<td><a href="mailto:Jay.Eldridge@DAIKINAPPLIED.COM">Jay.Eldridge@DAIKINAPPLIED.COM</a></td>
<td>CN</td>
<td>No</td>
</tr>
<tr>
<td>Geoff Bares</td>
<td>Enwave Chicago</td>
<td><a href="mailto:geoff.bares@enwave.com">geoff.bares@enwave.com</a></td>
<td>VM</td>
<td>N</td>
</tr>
<tr>
<td>Name</td>
<td>Affiliation</td>
<td>E-mail</td>
<td>Member (Voting, Corresponding, or Guest?)</td>
<td>YEA Member? (Yes/No)</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>------------------------------</td>
<td>-----------------------------------------</td>
<td>------------------------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>S. David Ovorak</td>
<td>UNIVERSITY OF MAINE</td>
<td><a href="mailto:dvorak@maine.edu">dvorak@maine.edu</a></td>
<td>CM</td>
<td>No</td>
</tr>
<tr>
<td>Nareeshwaran. Menonagyr</td>
<td>Burns Engineering</td>
<td><a href="mailto:nmanisagar@burns-group.com">nmanisagar@burns-group.com</a></td>
<td>CM</td>
<td>Yes</td>
</tr>
<tr>
<td>Jing Wang</td>
<td>University of Colorado Boulder</td>
<td><a href="mailto:jing.wang@colorado.edu">jing.wang@colorado.edu</a></td>
<td>Guest</td>
<td>No</td>
</tr>
<tr>
<td>Mohammadhossein Fathollahzadeh</td>
<td>Colorado School of Mines</td>
<td><a href="mailto:m.fathollahzadeh@mines.edu">m.fathollahzadeh@mines.edu</a></td>
<td>Guest</td>
<td>Yes</td>
</tr>
<tr>
<td>Harrison Kesling</td>
<td>Wiley &amp; Wilson</td>
<td><a href="mailto:hkesling@wileywilson.com">hkesling@wileywilson.com</a></td>
<td>Guest</td>
<td>Yes</td>
</tr>
<tr>
<td>Ben McEwen</td>
<td>Humban College</td>
<td><a href="mailto:ben.a.mcewen@gmail.com">ben.a.mcewen@gmail.com</a></td>
<td>Guest</td>
<td>Yes</td>
</tr>
<tr>
<td>Mathieu Rondeau</td>
<td>Energy Inc</td>
<td><a href="mailto:mathieu.rondeau@energy.com">mathieu.rondeau@energy.com</a></td>
<td>Guest</td>
<td>No</td>
</tr>
<tr>
<td>Ranjith Narasimhmorthy</td>
<td>UCDAVIS</td>
<td><a href="mailto:renmurthy@ucdavis.edu">renmurthy@ucdavis.edu</a></td>
<td>Guest</td>
<td>No</td>
</tr>
<tr>
<td>Nemat Lotfi</td>
<td>ENERGY FACILITY ENG-</td>
<td><a href="mailto:service@pennhvac.com">service@pennhvac.com</a></td>
<td>CM</td>
<td>No</td>
</tr>
<tr>
<td>David Austin</td>
<td>Perception Hydronics</td>
<td><a href="mailto:dave@perceptionhydronics.com">dave@perceptionhydronics.com</a></td>
<td>Guest</td>
<td>No</td>
</tr>
<tr>
<td>Name</td>
<td>Affiliation</td>
<td>E-mail</td>
<td>Member</td>
<td>YEA Member?</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------------</td>
<td>----------------------------------</td>
<td>---------------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Dawen Lu</td>
<td>Lu+5 Engineers</td>
<td><a href="mailto:clu6838@gmail.com">clu6838@gmail.com</a></td>
<td>Section 6</td>
<td>No</td>
</tr>
<tr>
<td>Matt Gressler</td>
<td>DCMAPP</td>
<td><a href="mailto:Art.Gressler@att.net">Art.Gressler@att.net</a></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Betsy Goll</td>
<td>FLCS</td>
<td>Elizabeth.goll@flcs</td>
<td>Voting</td>
<td>No</td>
</tr>
<tr>
<td>Jessica Mangler</td>
<td>AEI</td>
<td><a href="mailto:jmangler@gmail.com">jmangler@gmail.com</a></td>
<td>Vice Chair Voting</td>
<td>Y</td>
</tr>
<tr>
<td>Daniel Pyewell</td>
<td>Tanco Eng.</td>
<td><a href="mailto:dpyewell@tancoeng.com">dpyewell@tancoeng.com</a></td>
<td>Voting</td>
<td>No</td>
</tr>
<tr>
<td>Steve Snyder</td>
<td>JCI</td>
<td><a href="mailto:Steven.c.snyder@jci.com">Steven.c.snyder@jci.com</a></td>
<td>Guest</td>
<td>Y</td>
</tr>
<tr>
<td>Alec Cusick</td>
<td>Owens Corning</td>
<td><a href="mailto:Alec.Cusick@owenscorning.com">Alec.Cusick@owenscorning.com</a></td>
<td>Corresponding Member</td>
<td>No</td>
</tr>
<tr>
<td>Patrick Villuime</td>
<td>Patterson-Kelley</td>
<td><a href="mailto:patrick.villuime@spx.com">patrick.villuime@spx.com</a></td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>Daryl Stauffer</td>
<td>Johnson Controls</td>
<td><a href="mailto:daryl.stauffer@jci.com">daryl.stauffer@jci.com</a></td>
<td>Guest</td>
<td>N</td>
</tr>
<tr>
<td>Tim Anderson</td>
<td>Applied Engineering</td>
<td><a href="mailto:tanderson@appli.com">tanderson@appli.com</a></td>
<td>Programs Chain</td>
<td>N</td>
</tr>
<tr>
<td>Name</td>
<td>Affiliation</td>
<td>E-mail</td>
<td>Member (Voting, Corresponding, or Guest?)</td>
<td>YEA Member? (Yes/No)</td>
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<tr>
<td>JEFF GATLIN</td>
<td>ARAMARK HEALTHCARE/ST JUDE CHILDREN'S RESEARCH HOSP.</td>
<td><a href="mailto:jeff_gatlin_pe@emai.co">jeff_gatlin_pe@emai.co</a></td>
<td>Corresponding</td>
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<td>Ryan Lime</td>
<td>Johnson Controls</td>
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<tr>
<td>Steve Tedinmick</td>
<td>Burns &amp; McDonnell</td>
<td><a href="mailto:stvstrad@gmail.com">stvstrad@gmail.com</a></td>
<td>Voting - Handbook</td>
<td>N</td>
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<tr>
<td>Gary Phetsplace</td>
<td>GWAP Research</td>
<td><a href="mailto:garyp@guaresearch.com">garyp@guaresearch.com</a></td>
<td>Corresponding</td>
<td>N</td>
</tr>
<tr>
<td>DRAGOS PARASCHIV</td>
<td>Hernder College</td>
<td><a href="mailto:olvagoo@paraschiva.ca">olvagoo@paraschiva.ca</a></td>
<td>C. M</td>
<td>N</td>
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</table>
## TC/TG/TRG Activity Feedback Form

### PLEASE DO NOT LEAVE NUMERIC CELLS EMPTY. ENTER 0 IN CELLS IF THERE IS NO COUNT.

<table>
<thead>
<tr>
<th>TC#</th>
<th>6.2</th>
<th>Committee Name:</th>
<th>District Energy</th>
<th>Chair:</th>
<th>Alan Neely</th>
</tr>
</thead>
</table>

**Meeting was Held (City):** Orlando  **(Day):** Sunday  **(Date):** 2/2/2020

<table>
<thead>
<tr>
<th>Member Type</th>
<th>Number Present</th>
<th>Remote Participants</th>
<th>Total on Committee Roster</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voting Members [excluding Non-Quorum Members]</td>
<td>9</td>
<td>0</td>
<td>10</td>
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<tr>
<td>Non-Quorum Members</td>
<td>1</td>
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<tr>
<td>Corresponding Members</td>
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<tr>
<td>Provisional Members</td>
<td>5</td>
<td>0</td>
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<tr>
<td>Visitors/Guests</td>
<td>7</td>
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<tr>
<td>All members/guests who are ALSO YEA members</td>
<td>9</td>
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**Handbook Responsibilities**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Number Complete</th>
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<tbody>
<tr>
<td>Total Number of Chapters</td>
<td>2</td>
</tr>
<tr>
<td>Chapter(s) approved at this meeting</td>
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</table>

**Special Publications (last six months):**

<table>
<thead>
<tr>
<th>Title(s):</th>
<th>N/A</th>
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</thead>
</table>

**Program Activities (For This Meeting):**

<table>
<thead>
<tr>
<th>Activity Type</th>
<th>Number Complete</th>
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</thead>
<tbody>
<tr>
<td>Total # of Forums</td>
<td>Total # of Seminars</td>
</tr>
<tr>
<td>Submitted*</td>
<td>Accepted*</td>
</tr>
<tr>
<td>-------------</td>
<td>-----------</td>
</tr>
<tr>
<td>0</td>
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</tbody>
</table>

**Other Presentations**

* | 0 | Other Papers*** | 0 |

**Current Research Activities (active):**

<table>
<thead>
<tr>
<th>Activity Type</th>
<th>Number Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td># of new/revised RTARs submitted</td>
<td>0</td>
</tr>
<tr>
<td># of other active RTARs</td>
<td>0</td>
</tr>
<tr>
<td># of new/revised Work Statements submitted</td>
<td>0</td>
</tr>
<tr>
<td># of other active Work Statements</td>
<td>0</td>
</tr>
<tr>
<td># of active TRPs</td>
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<td># of active RPs</td>
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<tr>
<td># of other active Work Statements</td>
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<tr>
<td># of active Work Statements</td>
<td>0</td>
</tr>
<tr>
<td>Problems getting RTAR/WS approved?</td>
<td>NO</td>
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</tbody>
</table>

**TC Management**

<table>
<thead>
<tr>
<th>Activity Type</th>
<th>Number Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minutes completed on time?</td>
<td>YES</td>
</tr>
<tr>
<td>Agenda distributed on time?</td>
<td>YES</td>
</tr>
<tr>
<td>Did Chair attend training?</td>
<td>NO</td>
</tr>
<tr>
<td>Did Vice Chair attend?</td>
<td>NO</td>
</tr>
<tr>
<td>Did Program Chair attend training?</td>
<td>YES</td>
</tr>
<tr>
<td>Did Handbook Chair attend training?</td>
<td>YES</td>
</tr>
<tr>
<td>Did Research Chair attend breakfast?</td>
<td>YES</td>
</tr>
<tr>
<td>Problems getting RTAR/WS approved?</td>
<td>NO</td>
</tr>
</tbody>
</table>

**Other Technical Activities**

<table>
<thead>
<tr>
<th>Activity Type</th>
<th>Number Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td># FAQs updated this meeting</td>
<td>0</td>
</tr>
<tr>
<td># of Other Nominations: Hightower, Research, Fellow, etc.</td>
<td>0</td>
</tr>
<tr>
<td># New members added to roster</td>
<td>0</td>
</tr>
</tbody>
</table>

**Award Nominations (last six months):**

<table>
<thead>
<tr>
<th>Activity Type</th>
<th>Number Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td># Other Nominations: Hightower, Research, Fellow, etc.</td>
<td>0</td>
</tr>
</tbody>
</table>

Any Concerns or requests for the Technical Activities Committee? (Please type in space below, use Alt+Enter to drop to a new line)

* Include only sessions which your TC initiated  
** Sessions which were initiated by another TC  
*** Papers from TC in sessions not sponsored by TC
Chair
8074057 064  Voting
Term in Position: 07/01/2017 to 06/30/2020
Term on Committee: 07/01/2007 to 06/30/2020
Mr Robert (Alan) Neely
9103 Willow Springs Ln
Conroe, TX 77302-3453
Owens Corning - Foamglas Insulation
Phone: (281)432-9864 Fax: (281)465-9186
Email: alan.neely@owenscorning.com

Vice Chair
8089391 054  Voting
Term in Position: 07/01/2017 to 06/30/2020
Term on Committee: 07/01/2015 to 06/30/2020
Ms Jessica A Mangler, PE YEA
2469 55th Ave SW Unit B
Seattle, WA 98116-2209
Affiliated Engineers, Inc.
Phone: (417)489-9055 Fax:
Email: j mangler@gmail.com

Secretary
8116870 021  Voting
Term in Position: 07/01/2018 to 06/30/2022
Term on Committee: 09/07/2016 to 06/30/2022
Mr Michael Calabrese, PE
319 Cheswold Rd
Drexel Hill, PA 19026-3501
Phone: (215)979-7700 Fax: (215)405-2510
(7780)
Email: MCalabrese.Philly.ASHRAE@gmail.com

Handbook Subcommittee Chair
1081787 049  Voting
Term in Position: 07/01/2017 to 06/30/2022
Term on Committee: 07/01/2017 to 06/30/2021
Mr Steven M Tredinnick, PE
1431 Opus Pl Ste 400
Downers Grove, IL 60515-1164
Burns & McDonnell
Phone: (608)287-4753 Fax:
Email: stevetred@gmail.com

Program Subcommittee Chair
3026670 043  Voting
Term in Position: 07/01/2018 to 06/30/2022
Term on Committee: 07/01/2014 to 06/30/2022
Mr Timothy M Anderson
Applied Engineering Services
5975 Cast Ct Pkwy N Dr Ste 300
Indianapolis, IN 46250-4346
Phone: (317)810-4141 Fax: (317)810-4140
(182)
Email: tanderson@applied-e-s.com

Research Subcommittee Chair
7974058 052  Non-voting
Term in Position: 07/01/2018 to
Term on Committee: 07/01/2007 to 06/30/2018
Mr Jay Eldridge
Daikin Applied
13600 Indust Pk Blvd
Minneapolis, MN 55441-3743
Phone: (763)553-5424 Fax: (763)557-4916
Email: jay.eldridge@daikinapplied.com

MTG.ASEC - VOTING MEMBER
580344 152  Non-voting
Term in Position: 07/01/2016 to
Term on Committee: 07/01/2010 to 06/30/2016
Dr Gary E Phetteplace, PE
GWA Research LLC
7 Masa Morey Ln
Lyme, NH 03768-3424
Phone: (603)795-4920 Fax:
Email: garyp@gwaresearch.com

Webmaster
8297570 073  Voting
Term in Position: 07/01/2018 to 06/30/2022
Term on Committee: 02/09/2017 to 06/30/2022
Mr Daniel Richard Pyewell
Tanco Engineering
2002 Basalt Ct
Loveland, CO 80538-5593
Phone: 970-776-4227 Fax:
Email: punxpyewe79@yahoo.com

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Member
8279022  175  Voting
Term in Position:  07/01/2019 to 06/30/2023
Term on Committee:  07/01/2016 to 06/30/2023
Mr Mohamed Eltaieb
Ibrahim Alagraa
Dc Pro Engineering
Sharjah -Buhirah off2507 Al Durah
P.O.Box 22851
Sahrijah,  22851 UNITED ARAB EMIRATES
Phone:  0506557612  Fax:  0665566881
Email:  aqraa@hotmail.com

Member
8149396  175  Voting
Term in Position:  07/01/2019 to 06/30/2023
Term on Committee:  07/01/2016 to 06/30/2023
Mr Mohamed Eltaieb
Ibrahim Alagraa
Dc Pro Engineering
Sharjah -Buhirah off2507 Al Durah
P.O.Box 22851
Sahrijah,  22851 UNITED ARAB EMIRATES
Phone:  0506557612  Fax:  0665566881
Email:  aqraa@hotmail.com

Member
8141881  049  Voting
Term in Position:  07/01/2019 to 06/30/2023
Term on Committee:  07/01/2016 to 06/30/2023
Mr Geoffrey Bares
Enwave Chicago
200 W Jackson Blvd Ste 1310
Chicago,  IL  60606-6941
Phone:  (312)377-1793  Fax:  (815)439-6595
Email:  geoff.bares@enwave.com

Member
8149396  175  Voting
Term in Position:  07/01/2019 to 06/30/2023
Term on Committee:  07/01/2016 to 06/30/2023
Mr Mohamed Eltaieb
Ibrahim Alagraa
Dc Pro Engineering
Sharjah -Buhirah off2507 Al Durah
P.O.Box 22851
Sahrijah,  22851 UNITED ARAB EMIRATES
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Email:  aqraa@hotmail.com

Member
8141881  049  Voting
Term in Position:  07/01/2019 to 06/30/2023
Term on Committee:  07/01/2016 to 06/30/2023
Mr Geoffrey Bares
Enwave Chicago
200 W Jackson Blvd Ste 1310
Chicago,  IL  60606-6941
Phone:  (312)377-1793  Fax:  (815)439-6595
Email:  geoff.bares@enwave.com

Member
5059903  104  Voting
Term in Position:  07/01/2019 to 06/30/2023
Term on Committee:  06/25/2018 to 06/30/2023
Ms Elizabeth A Goll
2005 N Hibiscus Dr
North Miami,  FL  33181-2351
Florida Power & Light
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Email:  elizabeth.goll@fpl.com

Member
8300359  075  Voting
Term in Position:  07/01/2017 to 06/30/2021
Term on Committee:  10/13/2016 to 06/30/2021
Mr Scott T Murray
Clearway Energy
2152 Howard St
Omaha,  NE  68102-2455
Phone:  (402) 515-4589  Fax:  
Email:  scott.murray@clearwayenergy.com

Provisional Corresponding Member
8378907  182  Non-voting
Term in Position:  08/19/2019 to 08/19/2021
Term on Committee:  08/19/2019 to 08/19/2021
Mr Mohamed Hany
Abokersh Eng
Department of Mechanical Engineering, Universitat Rovira i Virgili
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Campus Sescelades
Tarragona,  43007 SPAIN
Phone:  +34602049823  Fax:  
Email:  mohamed.abokersh@urv.cat

Provisional Corresponding Member
8369237  016  Non-voting
Term in Position:  10/29/2019 to 10/29/2021
Term on Committee:  10/29/2019 to 10/29/2021
Mr Adewumi Dada
Adepoju
219 Glenn Hawthorne Blvd
Mississauga, ON  L5R 2M5 CANADA
Phone:  +1(639)999-0301  Fax:  
Email:  adewumi.adepoju@yahoo.com

Provisional Corresponding Member
8299861  999  Non-voting
Term in Position:  01/28/2018 to 01/28/2020
Term on Committee:  01/28/2018 to 01/28/2020
Mr Hyeunguk Ahn
YEA
555 Pierce St Apt 438
Albany,  CA  94706-1006
Phone:  18145718076  Fax:  
Email:  wook01230@gmail.com

Provisional Corresponding Member
8382941  032  Non-voting
Term in Position:  11/19/2019 to 11/19/2021
Term on Committee:  11/19/2019 to 11/19/2021
Mr Daniel Almeida
YEA
1537 Deerfield Pt
Alpharetta,  GA  30004-8955
SWEP North America, Inc.
Phone:  (678) 313-4541  Fax:  
Email:  daniel.almeida@swep.net

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<table>
<thead>
<tr>
<th>Provisional Corresponding Member</th>
<th>Term in Position: 10/17/2019 to 10/17/2021</th>
<th>Term on Committee: 10/17/2019 to 10/17/2021</th>
<th>Phone: 6045566973</th>
<th>Fax:</th>
<th>Email: <a href="mailto:jayson.bursill@gmail.com">jayson.bursill@gmail.com</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr Jayson F Bursill</td>
<td>YEA</td>
<td>3-528 Hilson Ave</td>
<td>Ottawa, ON  K1Z 6C8 CANADA</td>
<td>Phone:</td>
<td>Fax:</td>
</tr>
</tbody>
</table>

| Provisional Corresponding Member | Term in Position: 09/23/2019 to 09/23/2021 | Term on Committee: 09/23/2019 to 09/23/2021 | Phone: | Fax: |
|----------------------------------|------------------------------------------|------------------------------------------|---------------------|------|----------------------|
| Dr Mohamed S El-Morsi | PhD | The American University in Cairo | Dept.of Mechanical Engineering | AUC Avenue P.O. Box74 | Cairo, 11835 EGYPT | Phone: | Fax: |
| Provisional Corresponding Member | Term in Position: 07/18/2019 to 07/18/2021 | Term on Committee: 07/18/2019 to 07/18/2021 | Phone: | Fax: |
|----------------------------------|------------------------------------------|------------------------------------------|---------------------|------|----------------------|
| Mr Jeff Gatlin PE | | 2585 School St | Hernando, MS  38632-2217 | Phone: | Fax: |
| Provisional Corresponding Member | Term in Position: 01/21/2018 to 01/21/2020 | Term on Committee: 01/21/2018 to 01/21/2020 | Phone: | Fax: |
|----------------------------------|------------------------------------------|------------------------------------------|---------------------|------|----------------------|
| Charlotte Wan Dean | YEA | 232 Newport Ave Apt A | Long Beach, CA  90803-5947 | Phone: | Fax: |
| Provisional Corresponding Member | Term in Position: 01/24/2018 to 01/24/2020 | Term on Committee: 01/24/2018 to 01/24/2020 | Phone: | Fax: |
|----------------------------------|------------------------------------------|------------------------------------------|---------------------|------|----------------------|
| Mr Frederic Genest | | 1615 Lionel-Boulet Blvd | Varennes, QC  J3X 1S6 CANADA | Phone: | Fax: |
| Provisional Corresponding Member | Term in Position: 01/18/2019 to 01/18/2021 | Term on Committee: 01/18/2019 to 01/18/2021 | Phone: | Fax: |
|----------------------------------|------------------------------------------|------------------------------------------|---------------------|------|----------------------|
| Karl W. Heine | YEA | 7761 Teller St | Arvada, CO  80003-2226 | Phone: | Fax: |

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Provisional Corresponding Member
8266380 175 Non-voting
Term in Position: 05/02/2019 to 05/02/2021
Term on Committee: 05/02/2019 to 05/02/2021
Mr Farhan Juratli
Nakheel
The Gardens Jebel Ali
P.O. Box 17777
Dubai, UNITED ARAB EMIRATES
Phone: 509402997 Fax:
Email: Farhan.Juratli@nakheel.com

Provisional Corresponding Member
8127696 084 Non-voting
Term in Position: 01/23/2018 to 01/23/2020
Term on Committee: 01/23/2018 to 01/23/2020
Mr David Klug
P2S Engineering
5000 E Spring St Ste 8
Long Beach, CA 90815-5218
Phone: (562)497-2999 Fax:
Email: david.klug@p2sinc.com

Provisional Corresponding Member
821901 021 Non-voting
Term in Position: 09/17/2018 to 09/17/2020
Term on Committee: 09/17/2018 to 09/17/2020
Noreshvarman Manisagar
YEA
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Provisional Corresponding Member
8319082 071 Non-voting
Term in Position: 12/16/2019 to 12/16/2021
Term on Committee: 12/16/2019 to 12/16/2021
Mr Harrison F Kesling
YEA
5540 Centerview Drive, Ste 405
Raleigh, NC 27606
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Provisional Corresponding Member
8309636 106 Non-voting
Term in Position: 07/03/2018 to 07/03/2020
Term on Committee: 07/03/2018 to 07/03/2020
Joshua Kirlin
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Provisional Corresponding Member
8316947 175 Non-voting
Term in Position: 11/26/2019 to 11/26/2021
Term on Committee: 11/26/2019 to 11/26/2021
Mr Mohammed Murtaza,
Eng
# Al Fahad Building, Flat No. 204,
2nd Floor, Opp. Shaklan Supermarket
Al Warqa 1 Dubai, 0000 UNITED ARAB EMIRATES
Cubic Engineering Consultancy
Phone: 558145300 Fax:
Email: MohammedMurtaza024@gmail.com

Provisional Corresponding Member
8358777 074 Non-voting
Term in Position: 05/07/2019 to 05/07/2021
Term on Committee: 05/07/2019 to 05/07/2021
Steven Klekas
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1795 E South Cmps Dr Rm 222
Salt Lake City, UT 84112-9449
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Email: steven.klekas@utah.edu

Provisional Corresponding Member
8285300 025 Non-voting
Term in Position: 06/08/2018 to 06/08/2020
Term on Committee: 06/08/2018 to 06/08/2020
Mihir Nandkeolyar
YEA
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Baltimore, MD 21231-2511
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Email: mihir.nandkeolyar@jci.com

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<table>
<thead>
<tr>
<th>Provisional Corresponding Member</th>
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<tbody>
<tr>
<td>8260029 067 Non-voting</td>
<td>8360588 004 Non-voting</td>
</tr>
<tr>
<td><strong>Mr Malik Notta</strong></td>
<td><strong>Mr Justin Simko</strong></td>
</tr>
<tr>
<td>1756 Vermont Ct Allen, TX 75013-3069</td>
<td>4 Windaway Rd Bethel, CT 06801-1610</td>
</tr>
<tr>
<td>Phone: (469) 878-1737 Fax: 43200907</td>
<td>van Zelm Engineers</td>
</tr>
<tr>
<td>Email: <a href="mailto:malik@notta.net">malik@notta.net</a></td>
<td>Phone: (680)284-5064 Fax: (317)</td>
</tr>
<tr>
<td>Term in Position: 10/04/2019 to 10/04/2021</td>
<td>Email: <a href="mailto:justinsimko12@gmail.com">justinsimko12@gmail.com</a></td>
</tr>
<tr>
<td>Term on Committee: 10/04/2019 to 10/04/2021</td>
<td>Term on Committee: 06/23/2019 to 06/23/2021</td>
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<tbody>
<tr>
<td>8237023 999 Non-voting</td>
</tr>
<tr>
<td><strong>Margaret Peterson</strong> YEA</td>
</tr>
<tr>
<td>P2S Engineering 5000 E Spring St 8th FL Long Beach, CA 90815-5218</td>
</tr>
<tr>
<td>Phone: (612)275-7552 Fax:</td>
</tr>
<tr>
<td>Email: <a href="mailto:grit.pete@gmail.com">grit.pete@gmail.com</a></td>
</tr>
<tr>
<td>Term in Position: 09/25/2018 to 09/25/2020</td>
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<tr>
<td>Term on Committee: 09/25/2018 to 09/25/2020</td>
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<tbody>
<tr>
<td>8067217 008 Non-voting</td>
</tr>
<tr>
<td><strong>Mr Sergio Sadaba</strong></td>
</tr>
<tr>
<td>8454 SE 63rd St Mercer Island, WA 98040-4925 Stantec</td>
</tr>
<tr>
<td>Phone: (206) 485-5706 Fax: 3122</td>
</tr>
<tr>
<td>Email: <a href="mailto:sergio.sadaba@gmail.com">sergio.sadaba@gmail.com</a></td>
</tr>
<tr>
<td>Term in Position: 03/09/2018 to 03/09/2020</td>
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<tr>
<td>Term on Committee: 03/09/2018 to 03/09/2020</td>
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<tbody>
<tr>
<td>8355770 064 Non-voting</td>
</tr>
<tr>
<td><strong>Mrs Heather A Sharif</strong> YEA</td>
</tr>
<tr>
<td>ITW Insulation Systems 1370 E 40th St Ste 1 Bldg 7 Houston, TX 77022-4150</td>
</tr>
<tr>
<td>Phone: (713) 696-5649 Fax:</td>
</tr>
<tr>
<td>Email: h <a href="mailto:sharif@itwinsulation.com">sharif@itwinsulation.com</a></td>
</tr>
<tr>
<td>Term in Position: 01/25/2019 to 01/25/2021</td>
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<tr>
<td>Term on Committee: 01/25/2019 to 01/25/2021</td>
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<table>
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<th>Corresponding Member</th>
</tr>
</thead>
<tbody>
<tr>
<td>8131646 174 Non-voting</td>
</tr>
<tr>
<td><strong>Mr Muhammad Ali</strong></td>
</tr>
<tr>
<td>43 Anderson Road</td>
</tr>
<tr>
<td>Fawkner, Victoria 3060 AUSTRALIA Direct Energy Australia</td>
</tr>
<tr>
<td>Phone: +61 448 458 Fax: 704</td>
</tr>
<tr>
<td>Email: <a href="mailto:m.ali@consultant.com">m.ali@consultant.com</a></td>
</tr>
<tr>
<td>Term in Position: 07/01/2015 to 06/30/2015</td>
</tr>
<tr>
<td>Term on Committee: 06/24/2014 to 06/24/2020</td>
</tr>
</tbody>
</table>

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Corresponding Member
8119140 175 Non-voting
Term in Position: 07/01/2015 to 06/30/2015
Term on Committee: 07/06/2013 to 06/30/2015
Mr Hassan F Ali Younes
Griffin Consultants
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Dubai, UNITED ARAB EMIRATES
Phone: 0097156115080 Fax: 4
Email: hassan@griffin-consultants.com

Corresponding Member
8207271 160 Non-voting
Term in Position: 07/01/2016 to 06/30/2016
Term on Committee: 02/22/2015 to 06/30/2016
Mr HAMZA AL-KHATEEB
Saudi Aramco
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Almidra Bldg.
DHAKSHAN, 31311 SAUDI ARABIA
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Email: hamzaalkhateeb@hotmail.com

Corresponding Member
1051512 088 Non-voting
Term in Position: 07/01/2012 to 06/30/2012
Term on Committee: 07/01/2008 to 06/30/2012
Ms Burkley M Allen, PE
I C Thomasson Assoc Inc
2950 Kraft Dr
Nashville, TN 37204-3623
Phone: (615)346-3520 Fax: (615)346-3550
Email: ballen@ichtomasson.com

Corresponding Member
2027398 049 Non-voting
Term in Position: 07/01/2017 to 06/30/2017
Term on Committee: 07/01/1997 to 06/30/2017
Mr John S Andrepont
The Cool Solutions Company
5007 Lincoln Ave Ste 201
Lisle, IL 60532-4187
Phone: (630)353-9690 Fax: (630)353-9691
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CORRESPONDING MEMBER
32406 022 Non-voting
Term in Position: 07/01/1990 to 06/30/2006
Term on Committee: 07/01/1993 to 06/30/2006
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Phone: (814)863-2076 Fax: (814)863-4789
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8220596 034 Non-voting
Term in Position: 03/10/2017 to
Term on Committee: to
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Corresponding Member
8180715 064 Non-voting
Term in Position: 07/01/2012 to 06/30/2012
Term on Committee: 10/17/2011 to
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Corresponding Member
8219242 101 Non-voting
Term in Position: 07/01/2015 to
Term on Committee: to
Mr Bryson Borzini YEA
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Silicon Valley Mechanical
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Email: bborzini@gmail.com

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Corresponding Member
8264527  015 Non-voting
Term in Position: 07/13/2016 to
Term on Committee: to
Mr Raymond Boulter
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Orléans, ON K1C 1N4 CANADA
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Corresponding Member
5127069  015 Non-voting
Term in Position: 12/07/2016 to
Term on Committee: to
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Corresponding Member
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Term in Position: 12/07/2016 to
Term on Committee: to
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Kashyap D.E.S.A.I Consulting Ltd
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Email: kashyapdesai@gmail.com

Corresponding Member
5051518  053 Non-voting
Term in Position: 07/01/2014 to 06/30/2014
Term on Committee: 07/01/2011 to
Mr Blake E Ellis, PE
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Overland Park, KS 66209-2781
Burns & McDonnell
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Email: blakeashrae@gmail.com

Corresponding Member
8295421  175 Non-voting
Term in Position: 11/09/2016 to
Term on Committee: to
Mr Amr Adel Galal
SIEMENS
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Email: amr.galal@siemens.com

Corresponding Member
8295421  175 Non-voting
Term in Position: 11/09/2016 to
Term on Committee: to
Mr Amr Adel Galal
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Dubai, UNITED ARAB EMIRATES
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Email: amr.galal@siemens.com

Corresponding Member
8210364  050 Non-voting
Term in Position: 04/02/2016 to
Term on Committee: to
Dr Michael P Case
US Army ERDC
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Phone: (217)373-7259 Fax: (217)373-7222
Email: michael.p.case@usace.army.mil

Corresponding Member
5150521  024 Non-voting
Term in Position: 07/01/2015 to
Term on Committee: 07/01/2002 to 06/30/2015
Mr Kenneth R Collier
Pittsburgh Corning Corp
800 Presque Isle Dr
Pittsburgh, PA 15239-2724
Phone: (724)327-6100 Fax: (724)327-5890 (3607)
Email: ken_collier@pghcorning.com

Corresponding Member
259862  070 Non-voting
Term in Position: 07/01/2015 to
Term on Committee: 04/29/2014 to 06/30/2015
Mr Arthur L Giesler
PermAlert ESP
PO Box 2031
Colleyville, TX 76034-2031
Phone: 817/239-2234 Fax:
Email: art.giesler@att.net

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### Corresponding Member

**8131299 049 Non-voting**

Term in Position: 07/01/2015 to 06/30/2015

Term on Committee: 08/21/2014 to 06/30/2015

**Mr Paul E Glanville**

Gas Technology Institute  
1700 S Mt Prospect Rd  
Des Plaines, IL 60018-1804  
Phone: (847)222-3278  
Fax:  
Email: paul.glanville@gastechnology.org

---

### Corresponding Member

**8001394 009 Non-voting**

Term in Position: 07/01/2016 to 06/30/2016

Term on Committee: 11/11/2015 to 06/30/2016

**Mr Matthew T Goss**

CDM Smith  
11 British Amer Blvd Ste 200  
Latham, NY 12110-1464  
Phone: (518)782-4500  
Fax: (518)786-3810  
Email: gossmt@cdmsmith.com

---

### Corresponding Member

**5194913 008 Non-voting**

Term in Position: 07/01/2015 to 06/30/2015

Term on Committee: 08/21/2014 to 06/30/2015

**Mr Yanzheng Guan, PhD**

2011 Powhatan St  
Falls Church, VA 22043-1861  
ARUP  
Phone: (212)593-0486  
Fax:  
Email: don.guan@gmail.com

---

### Corresponding Member

**7981029 062 Non-voting**

Term in Position: 06/26/2016 to  
Term on Committee: to

**Mr David L Handwork, PE**

Arkansas State University  
PO Box 250  
State Univ, AR  72467-0250  
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Fax: (870)972-3691  
Email: dhandwork@astate.edu

---

### Corresponding Member

**8018351 043 Non-voting**

Term in Position: 07/01/2011 to  
Term on Committee: to

**Mr Gordon H Hart**

Artek Engineering, LLC;  
20 Deerfield Rd  
Shrewsbury, MA 01545-1530  
Phone: (508)842-5826  
Fax:  
Email: gordonhhart@gmail.com

---

### Corresponding Member

**8204394 086 Non-voting**

Term in Position: 07/01/2017 to  
Term on Committee: to

**Mr Jon Heitzinger**

Northern Arizona University  
501 E. Pine Knoll Dr.  
Flagstaff, AZ 86011-0001  
Phone: (928)523-6895  
Fax:  
Email: jonathan.heitzinger@nau.edu

---

### Corresponding Member

**8121818 105 Non-voting**

Term in Position: 07/01/2012 to 06/30/2012

Term on Committee: to

**Mr Nathan L Ho**

P2S Engineering  
5000 E Spring St Ste 8  
Long Beach, CA 90815-5218  
Phone: (562)497-2999  
Fax:  
Email: nathan.ho@p2sinc.com

---

### Corresponding Member

**7988802 038 Non-voting**

Term in Position: 07/01/2016 to  
Term on Committee: to

**Mr Charles J Hofstetter, Jr**

Karpinski Engineering  
3135 Euclid Ave Ste 200  
Cleveland, OH 44115-2524  
Phone: (440)823-8270  
Fax:  
Email: joehofstetter@hotmail.com

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Corresponding Member
8115717   094   Non-voting
Term in Position: 01/29/2017 to
Term on Committee: to
Mr John D Jackson, PE
University of Florida
PO Box 117700
Gainesville, FL 32611-7735
Phone: (352)294-0816   Fax: (352)392-5715
Email: dustin.jackson@ufl.edu

Corresponding Member
8182966   105   Non-voting
Term in Position: 06/26/2017 to
Term on Committee: to
Mr Stephen P Kazim
1360 Redondo Ave Apt 104
Long Beach, CA 90804-2880
P2S Engineering
Phone: (714)496-3323   Fax: 
Email: stephen.kazim@p2sinc.com

Corresponding Member
8075227   161   Non-voting
Term in Position: 07/01/2011 to
Term on Committee: to
Mr Mohamed Khalil, LEED, HBDP, CEM
Flat 42, building 8, group 52
Elrehab city, New Cairo
Cairo, 11841 EGYPT
Shaker Group
Phone: 110009624   Fax: 225204505
Email: mohamed@osman.me

Corresponding Member
8173962   149   Non-voting
Term in Position: 07/01/2015 to
Term on Committee: 10/14/2014 to 06/30/2015
Dr Chun-Yong Khoo
8 Jalan Serunai Satu
Taman Desa Utama
Klang Selangor, 41200 MALAYSIA
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Phone: +60139819828   Fax: +60358799959
Email: kcybiz@gmail.com

Corresponding Member
2024455   064   Non-voting
Term in Position: 07/01/2017 to
Term on Committee: to
Mr Michael J Langton, PE
Enhanced Professional Services, LLC
18725 Stewart Hill Dr
Montgomery, TX 77356-2870
Phone: (832) 867-7149   Fax: 832 4425217
Email: mlangton@langtonenergy.com

Corresponding Member
8184544   025   Non-voting
Term in Position: 07/01/2015 to 08/21/2014
Term on Committee: to
Mr John Lau
Baltimore Aircoil Company
7600 Dorsey Run Rd
Jessup, MD 20794-9328
Phone: (410)799-6522   Fax: (410)799-6405
Email: jlau@baltimoreaircoil.com

Corresponding Member
8094334   034   Non-voting
Term in Position: 12/16/2016 to
Term on Committee: to
Ryan S Lime
105 Shady Bluff Ct
Saint Augustine, FL 32084-6562
JOHNSON CONTROLS
Phone: (904)687-8264   Fax: 
Email: ryanlime@gmail.com

Corresponding Member
8167351   010   Non-voting
Term in Position: 02/03/2016 to
Term on Committee: to
Mr Chonghui Liu
Popli Design Group
450 W Kirkpatrick St
Syracuse, NY 13204-1312
Phone: (315) 256-1362   Fax: 315.463.4540
Email: cliu@popligroup.com

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CORRESPONDING MEMBER
8043286  017  Non-voting
Term in Position:  07/01/2006 to
Term on Committee:  to
Mr Ed P Lohrenz
GEOptimize Inc.
220 Portage Avenue, Suite 1410
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Phone:  2043182156  Fax:  0000
Email:  ed@geoptimize.ca

Corresponding Member
443351   022  Non-voting
Term in Position:  07/01/2014 to
Term on Committee:  07/01/2009 to 06/30/2014
Mr Nemat Lotfi
731 Summit Lake Ct
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Eaton Corporation
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Email:  service@pennhvac.com

CORRESPONDING MEMBER
453614   008  Non-voting
Term in Position:  07/01/2001 to
Term on Committee:  to
Mr Mark M MacCracken, PE
CALMAC Corp
401 E 80th St.
Apt 30A
n, NY  New York
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Email:  mmaccracken@calmac.com

Corresponding Member
3027773   021  Non-voting
Term in Position:  07/04/2011 to
Term on Committee:  02/24/2010 to 02/24/2011
Mr Kenneth J Magsam, PE
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Warrington, PA 18976-1777
Burns Engineering
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Email:  kmagsam@burns-group.com

Corresponding Member
5087960   176  Non-voting
Term in Position:  07/01/2010 to
Term on Committee:  07/01/1995 to 06/30/2010
Dr Zoltan Magyar
Comfort Consulting Kft
Deak Ferenc U 2 Fszt 3
Szigetszentmiklós,  2310 HUNGARY
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Email:  zoltan.magyar.dr@gmail.com

Corresponding Member
463522   099  Non-voting
Term in Position:  12/14/2017 to
Term on Committee:  07/01/1993 to 12/13/2017
Mr Lawrence C Markel
12905 Sanderling Ln
Knoxville, TN  37922-5395
ORNL
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Email:  markellc@ornl.gov

CORRESPONDING MEMBER
2045984   009  Non-voting
Term in Position:  07/01/2003 to
Term on Committee:  07/01/1997 to 06/30/2003
Mr Robert E McCabe, PE
60 Marlboro Rd
Delmar, NY 12054-2923
State University Construction Fund
Phone:  (607)272-0243  Fax:  
Email:  mccabe.robert.e@gmail.com

CORRESPONDING MEMBER
5079390   095  Non-voting
Term in Position:  07/01/1997 to
Term on Committee:  to
Mr Timothy P McDowell
2330 High Lonesome Trl
Lafayette, CO  80026-9396
Thermal Energy Systems Specialists
Phone:  (608)274-2577  Fax:  (608)278-1475
Email:  mcdowell@tess-inc.com

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<tr>
<td><strong>Mr Frank J Pucciano</strong></td>
<td><strong>Dr William A Ryan, PhD</strong></td>
</tr>
<tr>
<td>769 Bruxton Woods Ct SW</td>
<td>400 N Walnut Ave</td>
</tr>
<tr>
<td>Lilburn, GA 30047-5374</td>
<td>Wood Dale, IL 60191-1549</td>
</tr>
<tr>
<td>Retired</td>
<td>University of Illinois at Chicago</td>
</tr>
<tr>
<td>Phone: 404/216-5191 Fax:</td>
<td>Phone: (630)561-4448 Fax: (312)996-5620</td>
</tr>
<tr>
<td>Email: <a href="mailto:frank.pucciano@gmail.com">frank.pucciano@gmail.com</a></td>
<td>Email: <a href="mailto:wryan@uic.edu">wryan@uic.edu</a></td>
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<tr>
<td><strong>Mr Dharam V Punwani</strong></td>
<td><strong>Mr Michael Samadhin</strong></td>
</tr>
<tr>
<td>Avalon Consulting Inc</td>
<td>Clarke Samadhin Associates</td>
</tr>
<tr>
<td>427 Prairie Knoll Dr</td>
<td>PO Box 120223</td>
</tr>
<tr>
<td>Naperville, IL 60565-4152</td>
<td>Dubai, UNITED ARAB EMIRATES</td>
</tr>
<tr>
<td>Phone: (630)983-0883 Fax: (630)357-1004</td>
<td>Phone: 97144342135 Fax: 97144342136</td>
</tr>
<tr>
<td>Email: <a href="mailto:dpunwani@avalonconsulting.com">dpunwani@avalonconsulting.com</a></td>
<td>Email: <a href="mailto:msamadhin@clarkeSamadhin.com">msamadhin@clarkeSamadhin.com</a></td>
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<tr>
<td><strong>Mr PJ Qvarnstrom</strong></td>
<td><strong>Mr Randy C Schrecengost, PE</strong></td>
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<tr>
<td>17 Cocheset Path</td>
<td>3003 Kerbey Ln</td>
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<tr>
<td>West Yarmouth, MA 02673-2559</td>
<td>Austin, TX 78703-1423</td>
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<tr>
<td>Swep</td>
<td>Stanley Consultants</td>
</tr>
<tr>
<td>Phone: (918)231-6770 Fax:</td>
<td>Phone: 512-619-5058 Fax: 512-427-3699</td>
</tr>
<tr>
<td>Email: <a href="mailto:philip.qvarnstrom@swep.net">philip.qvarnstrom@swep.net</a></td>
<td>Email: <a href="mailto:schrecengostrandy@stanleygroup.com">schrecengostrandy@stanleygroup.com</a></td>
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<td>8196617 206 Non-voting</td>
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</tr>
<tr>
<td><strong>Mr Kevin D Rafferty</strong></td>
<td><strong>Mr Hessam Seifi</strong></td>
</tr>
<tr>
<td>Retired</td>
<td>DC PRO Engineering</td>
</tr>
<tr>
<td>PO Box 1935</td>
<td>Office 2507, Al Durrah Tower</td>
</tr>
<tr>
<td>Klamath Falls, OR 97601-0152</td>
<td>Buheira Corniche, P.O. Box 22851</td>
</tr>
<tr>
<td>Phone: (541)783-3324 Fax: (541)783-3324</td>
<td>Sharjah, 22851 UNITED ARAB EMIRATES</td>
</tr>
<tr>
<td>Email: <a href="mailto:tripower@bmi.net">tripower@bmi.net</a></td>
<td>Phone: 0501142287 Fax:</td>
</tr>
<tr>
<td>Email: <a href="mailto:hessam_seifi@hotmail.com">hessam_seifi@hotmail.com</a></td>
<td>Email: <a href="mailto:hessam_seifi@hotmail.com">hessam_seifi@hotmail.com</a></td>
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Corresponding Member
8218253 064 Non-voting
Term in Position: 07/01/2015 to 06/30/2015
Term on Committee: 09/17/2013 to 06/30/2015
Mr Eren Selcen, PE
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Email: eren.selcen@houstontx.gov

Corresponding Member
8161970 191 Non-voting
Term in Position: 07/01/2015 to 06/30/2015
Term on Committee: 08/16/2014 to 06/30/2015
Mr Elangovan Shanmugam
Ws Atkins
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Phone: 9902466499 Fax: none
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Corresponding Member
685827 052 Non-voting
Term in Position: 07/01/2010 to 06/30/2010
Term on Committee: 07/01/1995 to 06/30/2010
Mr Alexander H Sleiman
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Saint Paul, MN 55102-1611
Dist Energy St Paul Inc
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Email: alex.sleiman@districtenergy.com

Corresponding Member
8043552 049 Non-voting
Term in Position: 07/01/2010 to 06/30/2010
Term on Committee: to
Mr Steve N Spentzas
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Wheaton, IL 60187-5457
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Corresponding Member
2007547 043 Non-voting
Term in Position: 07/01/2015 to 06/30/2015
Term on Committee: 07/01/2001 to 06/30/2015
Mr Francis L St John
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5975 Cast Ck Pkwy N Dr Ste 300
Indianapolis, IN 46250-4346
Phone: (317)502-3859 Fax: (317)810-4140
Email: fstjohn@applied-e-s.com

Corresponding Member
5125884 010 Non-voting
Term in Position: 07/01/2008 to 06/30/2010
Term on Committee: to
Mr Michael Stark
167 Woodstream Cir
Mooresville, NC 28117-7498
Carrier Corporation
Phone: 7048404747 Fax: (860)998-2690
Email: mike.stark@carrier.com

Corresponding Member
8199054 054 Non-voting
Term in Position: 07/01/2013 to 06/30/2013
Term on Committee: 11/06/2012 to 06/30/2013
Mr Rory J Stegeman, PE
The CTS Group
11464 County Rd 395
Hartsburg, MO 65039
Phone: (573)301-0361 Fax: none
Email: RJStegeman@applied-e-s.com

Corresponding Member
2014618 026 Non-voting
Term in Position: 07/01/2007 to 06/30/2007
Term on Committee: 07/01/2000 to 06/30/2001
Mr Richard S Sweetser
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12020 Meadowville Ct
Herndon, VA 20170-2607
Phone: (703)707-0293 Fax: (703)707-9566
Email: rsweetser@exergypartners.com

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### CORRESPONDING MEMBER

**Mr Robert P Thornton**  
International District Energy Association  
1800 W Park Dr Ste 350  
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Fax: (508)366-0019  
Email: rob.idea@districtenergy.org

### CORRESPONDING MEMBER

**Mr Terrence J Whitehead**  
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### CORRESPONDING MEMBER

**Mr Verle A Williams, PE**  
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Escondido, CA 92026-6424  
Utility Services Unlimited Inc  
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### CORRESPONDING MEMBER

**Mr James W Young, Jr**  
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Dow Chemical Co  
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### CORRESPONDING MEMBER

**Dr Wangda Zuo**  
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Boulder, CO 80305-7042  
University of Colorado Boulder  
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Fax: 
Email: wangda.zuo@gmail.com

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<tr>
<th>Name</th>
<th>Title</th>
<th>Phone</th>
<th>Fax</th>
<th>Email</th>
</tr>
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<tbody>
<tr>
<td>Mr Jay A Kohler</td>
<td>TAC Chairman</td>
<td>508-5383</td>
<td>999</td>
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<td>Term in Position: 07/01/2019 to 06/30/2020</td>
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<td>Term on Committee: 07/01/2019 to 06/30/2020</td>
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<tr>
<td></td>
<td>York, PA 17408-9469</td>
<td>(717) 792-5266</td>
<td>(717) 771-7297</td>
<td><a href="mailto:jkohler9@comcast.net">jkohler9@comcast.net</a></td>
</tr>
<tr>
<td>Mr Dawen Lu, PE</td>
<td>Section Head</td>
<td>519-4915</td>
<td>028</td>
<td>Non-voting</td>
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<td>Glen Allen, VA 23060-6179</td>
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<td></td>
<td>Lu + Smith Engineers PLLC</td>
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<td>Phone: (804) 519-9306</td>
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<td></td>
<td>Email: <a href="mailto:dl6836@gmail.com">dl6836@gmail.com</a></td>
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<tr>
<td>Mr Michael P Patton</td>
<td>2020 HB SYSTEMS &amp; EQUIPMENT</td>
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<td></td>
<td>22 Willow Brook Dr</td>
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<td></td>
<td>Glastonbury, CT 06033-1055</td>
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<td>Griswold Water Systems</td>
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<tr>
<td>Omar A Abdelaziz, PhD</td>
<td>Research Liaison</td>
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<td>Agouzah, Giza 12411 EGYPT</td>
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<td>Oak Ridge National Laboratory</td>
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<td></td>
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<td></td>
<td>Email: <a href="mailto:hammerling@ashrae.org">hammerling@ashrae.org</a></td>
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2020 ASHRAE Winter Conference

TC 6.02 District Energy

Main Meeting

Sunday, 2020-02-02, Orlando, Fl
Agenda: TC 6.2 District Energy
Sunday, February 2nd, 2020 in Orlando, FL

Cosponsoring: None

TC 6.2 Main Committee Meeting
Sunday, February 2nd, 2020 3:00 pm – 5:00 pm, Hilton Orlando, L, Room Lake Mizell B

TC 6.2 Programs, Research, Handbook
Sunday, February 2nd, 2020 1:00 pm – 3:00 pm, Hilton Orlando, L, Room Lake Mizell B

Voting Committee Members
Mr. Alan Neely 6/30/2020
Mr. Geoffrey Bares 6/30/2020
Ms. Jessica Mangler 6/30/2020
Mr. Scott Murray 6/30/2021
Mr. Daniel Pyewell 6/30/2022
Mr. Michael Calabrese 6/30/2022
Mr. Steve Tredinnick 6/30/2021
Mr. Timothy Anderson 6/30/2022

New Incoming Voting Committee Members
Ms. Elizabeth Goll 6/30/2023

1. Call to Order: (TC Chairman- Alan Neely)

Technical Committee 6.2 is concerned with district energy technology and integrated systems that provide one or more forms of thermal energy or a combination of thermal energy and electric power from a central plant(s) to meet the heating, cooling, or combined thermal energy and power needs of end-users in two or more structures. The TC collects and disseminates information on regional resource planning including the design, performance, economic analysis, operation and maintenance of central plants, distribution networks, and consumer limited to materials, construction methods, heat transfer, fluid flow, and measurement. The scope of the TC includes the development and assessment of associated technologies for energy use sections.

2. Agenda & Attendance Handouts - (TC Chairman- Alan Neely)

3. ASHRAE Code of Ethics Commitment – (TC Chairman – Alan Neely)

   In this and all other ASHRAE meetings, we will act with honesty, fairness, courtesy, competence, integrity and respect for others, and we shall avoid all real or perceived conflicts of interests. (See full Code of Ethics: https://www.ashrae.org/about-ashrae/ashrae-code-of-ethics.)

4. Membership (Alan Neely)
   A. Members & Guests Introductions and Sign In
   C. Discuss recruiting new members and officers for this Technical Committee (TC 6.02)

5. Approval of Minutes from 13th January 2019 meeting in Atlanta, Georgia and Approval of the minutes from June 23rd 2019 meeting in Kansas City (TC 6.02 Secretary – Michael Calabrese)

6. Announcements by Chair:
A. CEC Call for Reviewers: 2020 Annual Meeting and others. Contact Tiffany Cox (tcox@ashrae.org) and copy TC Chair & Vice Chair (TC Chairman- Alan Neely)

7. Visitors & Liaison Reports/Information from other Committee Representatives
   A. DOE- Richard Sweetser
   B. IDEA- John Andrepont- Attached

8. Sub-Committee Reports:
   A. Handbook: Steve Tredinnick (Chair)
   B. Membership: John Andrepont (Chair)
   C. Program: Tim Anderson (Chair)
      i. Ideas:
         (1) Mohammed- How does one air condition an open roof Soccer Stadium in the middle of the dessert?
         (2) Alan- Chilled water insulation used in district energy applications (Austin is an ideal place to give this presentation)
         (3) TC6.8 (Geothermal Heat Pumps and Energy Recovery) as if there is any interest in co-sponsoring a program in Austin. To cover district condenser loops as an avenue to help cities and campuses do net zero/carbon neutral districts. They would submit it to track 8: Zero Energy Buildings and Communities: Opportunities and Challenges. They would like to include info on wastewater heat recovery and district geothermal as well as how it allows for flexibility at the building level (WSHPs, water to water HPs, water cooled vrf, etc.).

   D. Standards: Open
   E. Webmaster: Dan Pyewell (Chair)
   F. Research: Jay Eldridge (Chair)

9. Old Business-

10. New Business-
   A. TC Reorganization?

11. Meeting Adjourn (5pm)

Subcommittee Meetings - Day, Date, Times, & Location Prior to TC 6.2 Meeting:
TC 6.02 Handbook - Sunday, February 2nd, 2020 1:00 pm – 3:00 pm, Hilton Orlando, L, Room Lake Mizell B
TC 6.02 Program - Sunday, February 2nd, 2020 1:00 pm – 3:00 pm, Hilton Orlando, L, Room Lake Mizell B
TC 6.02 Research - Sunday, February 2nd, 2020 1:00 pm – 3:00 pm, Hilton Orlando, L, Room Lake Mizell B
IDEA Liaison Report to ASHRAE TC 6.2 and TC 1.10

Prepared by: John Andreopont (+1-630-353-9690 / CoolSolutionsCo@aol.com)

The International District Energy Association (IDEA) is an industry association of >2,300 members. The membership includes: District Energy (Thermal) Utilities; Physical Plant and Utilities Personnel from University, Medical, and other District Energy Facilities; Equipment Manufacturer/Suppliers; Service Providers to the Industry; other District Heating & Cooling Associations; plus Government, Student, and other Personal members.

IDEA publishes a quarterly magazine, entitled District Energy.

IDEA has two major conferences each year (one focused on campus District Energy systems and one focused on commercial thermal utility District Energy systems), as well as smaller workshops on subjects such as marketing and thermal distribution, plus occasional regionally-focused or technology-focused conferences. Each major conference also focuses on integrating Combined Heat & Power (CHP) and Thermal Energy Storage (TES) with District Energy.

Upcoming IDEA conferences include:

- 33rd Annual Campus Energy Conference, Workshops & Trade Show
  February 10-14, 2020 – Denver, Colorado
- 111th Annual Conference & Trade Show
  June 22-25, 2020 – Washington, D.C.
- 34th Annual Campus Energy Conference, Workshops & Trade Show
  February 16-19, 2021 – San Francisco, CA
- 112th Annual Conference & Trade Show
  June 14-17, 2021 – Austin, Texas

For further information on IDEA, contact:

Rob Thornton, President
IDEA
24 Lyman Street, Suite 230
Westborough, Massachusetts 01581

tel: 508-366-9339
fax: 508-366-0019
e-mail: rob.idea@districtenergy.org
website: www.districtenergy.org
Update on TC Reorganization, 11/2019

With multiple new Section Heads (SHs) on TAC this year, we thought it was a good idea to give you a little history, an update, and possible future steps in the efforts of the TC Reorganization.

History

The direction to look at the TC structure can from the 2014 strategic plan. Based on a survey of TC chair and vice-chairs, we found the following issues were important to our members:

- We are working in silos; too specific; need wider perspective
- We need to better manage stagnant TCs and membership
- Takes too long to change things; get discouraged
- We are not maintaining industry leadership
- We need to do a better job of sharing best practices

By taking on this reorganization, we hope to accomplish many things, including:

- Increase opportunity for collaboration for programs & research
- Increase opportunity for workshops for Handbook
- Increase meeting efficiency and increase effectiveness of members’ volunteer time

We asked our SHs to discuss restructuring the TCs- this could include merging some TCs or creating a new TC organizational structure for example. As with major change anywhere, some TCs took this as an opportunity for real change and some dug in their heels.

Update

So we have taken a look at other small changes to the processes in place, in an effort to seek collaboration and meeting efficiency.

TC Breakfast: In Kansas City, we rolled out a joint breakfast for the first time. The reasons for this were many, including a more efficient way of getting important information in everyone’s hands and increasing collaboration. Overall this effort was well-received, with a couple details to work out. In Orlando we will have larger tables and a bigger room, offering less background noise and enough room for everyone to have a seat at the table. This format has been very successful for RAC, so it is not a new concept.

Large Meeting Room for small meetings:

In Orlando, we are working with staff to offer a large meeting room (similar to Atlanta, if you remember) which will be setup with many round tables. We need a “catchy” name for this (taking ideas now), which will be a large member lounge of sorts. There will also be a quiet area if members need to get work done. Smaller TCs or subcommittees (10 people or less) will be encouraged to utilize this area instead of taking up multiple meeting rooms, and/or cancelling last minute. This will most likely continue in future meetings, depending on feedback in Orlando.

TC Mergers: Many TCs are looking into restructuring. We really want this process to be from within, and not necessarily top-down. TAC is here to assist, but not dictate. That being stated, TAC may need to take a more proactive approach, if there is evidence of an unwillingness on the part of Functional Groups to consider change. The first round of change needs to be wrapping up in Orlando, so staff (Tara) has time to focus on rosters as part of the regular timeline.
Sub-Committee Meeting Minutes  
Technical Committee, TC 6.02 District Energy  
Sunday, 2019-06-23, Kansas City, MO

TC 6.02 District Energy – Sub-Committee Meeting  
Sunday, 1:00 pm – 3:00 pm, KCCC, Room 2215C

Voting Committee Members Present:  
Mr. Steve Tredinnick 2021-06-30  
Mr. Michael Calabrese 2022-06-30  
Mr. Daniel Pyewell 2022-06-30

Telephone Participants:  
Mr. Alan Neely (partial) 2019-06-30  
Mr. Tim Anderson (partial) 2022-06-30  
Mr. Jay Eldridge (late) 2018-06-30

New Incoming Voting Committee Members:  
None

1. The Acting Chair (Steve Tredinnick) Called to Order

Technical Committee (TC) 6.02 is concerned with district energy technology and integrated systems that provide one or more forms of thermal energy or a combination of thermal energy and electric power from a central plant(s) to meet the heating, cooling, or combined thermal energy and power needs of end-users in two or more structures. The TC collects and disseminates information on regional resource planning including the design, performance, economic analysis, operation and maintenance of central plants, distribution networks, and consumer limited to materials, construction methods, heat transfer, fluid flow, and measurement. The scope of the TC includes the development and assessment of associated technologies for energy use sections.

2. Roll Call:

A. Only three (3) voting members present therefore quorum not met. Later, Alan Neely and Tim Anderson joined via telephone, but not items required voting.

3. Atlanta Meeting Minutes:

A. Meeting minutes are still in draft form and need to be completed by the Chair. Then they can be voted on. Since quorum not attained in Kansas City, they should be voted on at the 2020 Winter Conference in Orlando, FLA

4. Handouts Distributed

A. None

5. Sub-Committee Discussion:

A. Handbook: Steve Tredinnick (Chair)
   i. Chapter 12 and Chapter 15 were submitted to the Society and they were voted on by the TC in Atlanta  
   ii. Galley proof will be sent to review, between July 2019 and February 2020.  
   iv. District Cooling Guide was issued, version 2.
Elizabet (Betsy) Goll volunteered to be Vice Chair of Handbook committee and take over chair for as of July 1, 2020.

B. Program: Tim Anderson (Chair), not present, participated via telephone.
   i. Suggested programs, by Chair Alan Neely.
      (1) Chilled water insulation used in District Energy applications. $20M lessons learned. High profile chilled water failures.
         (a) The projects are Minute Maid, NRG Stadium and Lake Wood Church.
      (2) A project in Qatar in preparation for the World Cup that has 4 football (soccer) stadiums. How does one air condition an open Soccer Stadium in the middle of the dessert?
         (a) Plant is 1000T per AHU. 80 AHUs using 100%OA. The plant is about 2 miles away (piping distribution)
   ii. Additional topics discussed were the Chicago expansion, ENWAVE, under rail tracks. ROW issues.
   iii. Suggestion programs by Elizabeth (Betsy) Goll
      (1) Airport Plant MIA. Decommissioned air side chiller plant and introduced a 4000T chiller at CCPE plant.
      (2) Miami-Dade GSA District cooling plant that serves American Airlines (AA) Arena. System operates a low temperature, using 35deg water and a low supply air temperature.
      (3) Nova Southeast (SE), a Thermal Energy Storage (TES) plant. Elizabeth (Betsy) Goll will request additional information.
   iv. CEC Tracks for Winter 2020 in Orlando
      (1) HVAC&R Fundamentals and Applications
      (2) Systems and Equipment
      (3) Refrigeration and Refrigerants
      (4) Cutting Edge Approaches
      (5) High Efficiency Design and Operation
      (6) Big Data and Smart Controls
      (7) Ventilation, IAQ and Air Distribution Systems
      (8) Standards, Guidelines and Codes
   v. CEC Tracks for 2020 Annual in Austin
      (1) Fundamentals and Applications
      (2) HVAC&R Systems and Equipment
      (3) Professional Development
      (4) Research Summit
      (5) Potential Additional Track Ideas
         (a) Optimization and HVAC&R
         (b) Commissioning / Continuous Commissioning / Automated Fault Detection
         (c) Modeling Throughout the Building Life Cycle
         (d) Hydronic System Design
         (e) Existing Buildings
         (f) High Performance for Energy Intensive Building Types
         (g) Energy Efficiency and Renewables
         (h) Energy Recovery and Cascade Systems
         (i) Building Certification and Operating Metrics
         (j) Ground-Coupled Systems
         (k) Life Safety
         (l) Indoor Air Quality
      (6) Potential topics reviewed such as- Interactive Grid, Resilient Community
   vi. Mr. Thomas Lawrence from the University of Georgia. He is a very good speaker, he presented in Atlanta.
   vii. January 1, 2020. R123 no longer available. What will be used now?
(1) Ken Shultz from Trane is knowledgeable and may be approached by Bill Ryan.

C. Research: Jay Eldridge (Chair), Not Present at roll call, arrived late to this meeting.
   i. None

6. Open Discussion

   A. TC 6.02 Webpage is current and ASHRAE IT department will be approached to repair an issue with browsers.
   B. The ASHRAE authoring portal is only accessible with Internet Explorer v10.
   C. Any Research Topic Action Request (RTAR), Jay Eldridge will be following up with other TC’s for a potential joint venture.
   D. John Molnar suggested refrigerated warehouses, food temperatures. It could be beneficial for ASHRAE research to study food temperature,
      i. Viking Cold is a vendor. This uses phase change materials.
   E. Question was asked about the Society TC reorganization. It has not effected this TC. Society will be reviewing this by the Austin meeting. This topic will be reviewed in detail at 3pm, during the main meeting.

7. Meeting Adjourned at 1:45 pm.

Submitted by,
Michael Calabrese
TC 6.02 Secretary
2019-07-02
Technical Committee Meeting Minutes  
TC 6.02 District Energy  
Sunday, 2019-06-23, Kansas City, MO

TC 6.02 District Energy – Meeting  
Sunday, 3:00 pm – 5:00 pm, KCCC, Room 2215C

Voting Committee Members Present:  
Steve Tredinnick  2021-06-30  
Michael Calabrese  2022-06-30  
Daniel Pyewell  2022-06-30  

Telephone Participants:  
Alan Neely  2019-06-30  
Tim Anderson  2022-06-30  

New Incoming Voting Committee Members:  
Elizabeth (Betsy) Goll, ASHRAE Member #5059903

1. The Substitute Chair (Steve Tredinnick) Called to Order and discussed -

Technical Committee (TC) 6.02 is concerned with district energy technology and integrated systems that provide one or more forms of thermal energy or a combination of thermal energy and electric power from a central plant(s) to meet the heating, cooling, or combined thermal energy and power needs of end-users in two or more structures. The TC collects and disseminates information on regional resource planning including the design, performance, economic analysis, operation and maintenance of central plants, distribution networks, and consumer limited to materials, construction methods, heat transfer, fluid flow, and measurement. The scope of the TC includes the development and assessment of associated technologies for energy use sections.

2. General introductions
   A. 19 persons in the room.
   B. 2 persons on the Telephone.
   C. Handouts
      i. TC 6.02 District Energy Meeting Agenda
      ii. IDEA Liaison report, 2019-05-31 by John Andrepont

3. ASHRAE Code of Ethics Commitment – Announced by TC Substitute Chair (Steve Tredinnick)

   In this an all other ASHRAE meetings, we will act with honesty, fairness, courtesy, competence, integrity and respect for others, and we shall avoid all real or perceived conflicts of interest. (see full code of ethics: https://www.ashrae.org/about-ashrae/ashrae-code-of-ethics.)

4. Membership (TC Substitute Chair (Steve Tredinnick))
   A. Members & Guests Introductions, roundtable introductions
   B. Review of Current Voting Members and TC officers
   C. Recruiting of new members and officers for this technical committee (TC 6.02). Refer to attachment with members and their business cards.
      i. Elizabeth (Betsy) Goll, ASHRAE Member #5059903
      ii. Mohommed Ibrahim, ASHRAE Member #8149396
      iii. John Molnar, ASHRAE Member #8133771
      iv. Gary Phetteplace, ASHRAE Member #580344
      v. Drew Turner
      vi. Michael Langton, ASHRAE Member #2024455
D. TC Chair Alan Neely will be completing his term in 2019-06-30. He will continue as TC Chair and complete the paperwork.
E. The TC 6.02 roster requires updating and additional Voting Members to be considered.

5. Meeting Minutes
A. January 2019, Winter meeting in Atlanta, GA (by TC 6.02 secretary, Michael Calabrese)
   i. Revisions were reviewed. There are a few unknown names which are to be completed.
   ii. Vote is differed.

6. Announcements by Chair:
A. CEC call for reviewers: Orlando 2020 Winter Meeting and others. Contact Tiffany Cox (tcox@ashrae.org) and copy TC Chair, Alan Neely and Vice Chair, Jessica Mangler.
B. Remote participation meeting is an option to Vote on today’s items. To be reviewed by the Chair, Alan Neely.
C. A “Thank you” letter for employers is available from the ASHRAE president.
D. Friday 2019-08-02 is the deadline for the Orlando submissions.
E. Tech council is looking for nominations for the “Hightower” Award. Due to section head, Dawen Lu, by 2019-09-01.
F. Tracks are listed for Orlando Winter 2020 and Austin Annual 2020
G. TC reorganization was reviewed.
   i. Mergers are still being reviewed.
   ii. Comments by TC were received and the earliest would be at the Austin meeting.

7. Visitors and Liaison Reports/Information from other Committee Representatives
A. IDEA – John Andrepont (non-present, provided report to Chair)
   i. See the 2019-05-31 report attached to the agenda handout and available on the TC webpage.
   ii. ASHRAE and IDEA now have an agreement between the groups.
      (1) Blake Ellis is the liaison between ASHRAE and IDEA.
      (2) Conferences with IDEA may conflict, such as this conference, simultaneously with IDEA in Pittsburgh, PA.
      (3) IDEA Campus meeting is typically at the time of the ASHRAE annual meeting

8. Sub-Committee Reports:
A. Handbook: Steve Tredinnick (Chair)
   i. Chapter 12 and Chapter 15 was approved in Atlanta and have been submitted to the Society
   ii. Will be released in the new edition of the Handbook in Spring 2020. In 2024 there will be the new release
   iii. District Cooling Guide was issued, version 2.
   iv. Elizabeth (Betsy) Goll volunteered to be Vice Chair of Handbook committee and take over chair for as of July 1, 2020.
B. Membership: John Andrepont (Chair), not present
   i. None
C. Program: Tim Anderson (Chair), by Telephone.
   i. Suggested programs, by Chair Alan Neely. Suggested for the 2020 Winter meeting in Orlando.
      (1) Chilled water insulation used in District Energy applications. $20M lessons learned. High profile chilled water failures.
         (a) The projects are Minute Maid, NRG Stadium and Lake Wood Church.
      (2) A project in Dubai in preparation for the World Cup that has 4 football (soccer) stadiums. How does one air condition an open Soccer Stadium in the middle of the desert?
         (a) Plant is 1000T per AHU. 80 AHUs using 100%OA. The plant is about 2 miles away (piping distribution)
   ii. May be able to combine topics into one presentation.
      (1) Alan and Mohammed to provide detailed information to Tim Anderson, for program review.
iii. CEC Tracks for Winter 2020 in Orlando
   (1) HVAC&R Fundamentals and Applications
   (2) Systems and Equipment
   (3) Refrigeration and Refrigerants
   (4) Cutting Edge Approaches
   (5) High Efficiency Design and Operation
   (6) Big Data and Smart Controls
   (7) Ventilation, IAQ and Air Distribution Systems
   (8) Standards, Guidelines and Codes

iv. CEC Tracks for 2020 Annual in Austin
   (1) Fundamentals and Applications
   (2) HVAC&R Systems and Equipment
   (3) Professional Development
   (4) Research Summit
   (5) Potential Additional Track Ideas
   (a) Optimization and HVAC&R
   (b) Commissioning / Continuous Commissioning / Automated Fault Detection
   (c) Modeling Throughout the Building Life Cycle
   (d) Hydronic System Design
   (e) Existing Buildings
   (f) High Performance for Energy Intensive Building Types
   (g) Energy Efficiency and Renewables
   (h) Energy Recovery and Cascade Systems
   (i) Building Certification and Operating Metrics
   (j) Ground-Coupled Systems
   (k) Life Safety
   (l) Indoor Air Quality
   (6) Potential topics reviewed such as- Interactive Grid, Resilient Community

v. Refrigerant. January 1, 2020. R123 no longer available. What will be used now?
   (1) TC 8.2 Centrifugal Machines joint venture
   (2) Potential Speakers
   (a) Thomas Lawrence, University of Georgia. He presented in Atlanta.
   (b) Juan (UTA) may be able to present as well.
   (3) UTA Campus is off-grid. Their energy is cheapest in the world and they sell back to Austin.
   (4) Austin Energy Texas Facilities Commission. Robert Bush to volunteer to coordinate and assist Alan.
   (5) ENWAVE Chicago expansion under rail tracks. Right of way issues.

vi. Suggestions by Elizabeth Goll.
   (1) Airport Plant MIA. Decommissioned an air side chiller plant and introduced a 4000T chiller at CCPE plant.
   (2) Miami-Dade GSA District cooling plant that serves American Airlines Arena. The systems uses 35degF water and low temperature air distribution.
   (3) Nova SE, a Thermal Energy Storage (TES) plant. Not much information is known. Elizabeth Goll will get more information to present to this TC.

vii. John Karakash, had a program about 2 years ago, TC 8.3 Absorption and Heat Operated Machines and TC 6.9 Thermal Storage.
   (1) Educational Subcommittee of TC 7.3 Operation and Maintenance Management
   (a) Educational training or a forum at the 2020 Winter conference in Orlando on Lessons Learned.
   (2) Topics should be “Nightmare Stories”

D. Standards: Open
i. NONE
E. Webmaster: Dan Pyewell (Chair)
i. IT will be approached to fix an issue with browsers.

F. Research: Jay Eldridge (Chair)
   i. The District Cooling guide was discussed. RP 1762 a review meeting is scheduled for Monday 2019-06-24. TC 1.10 Combined Heat and Power Systems, is co-sponsoring.
   ii. Jay Eldridge expressed a desire to have a replacement as Chair. Gary Phetteplace volunteered.

9. Old Business-
   A. None

10. New Business-
    A. Mention of the newest District Energy, version 2, is in the ASHRAE bookstore now.
    B. Overview of TCs potentially combining and being synergized.

11. Meeting Adjourned at 4:03 pm.
    A. Announcement by Substitute Chair (Steve Tredinnick) to close this session.

Submitted by,
Michael Calabrese
TC 6.02 Secretary
2019-07-02

Subcommittee Meetings - Day, Date, Times, & Location Prior to TC 6.02 Meeting:

TC 6.02 Handbook - Sunday, 1:00 pm – 3:00 pm, KCCC, Room 2215C
TC 6.02 Program - Sunday, 1:00 pm – 3:00 pm, KCCC, Room 2215C
TC 6.02 Research - Sunday, 1:00 pm – 3:00 pm, KCCC, Room 2215C
1. The Chair (Alan Neely) Called to Order at 2:59pm and discussed -

Technical Committee (TC) 6.02 is concerned with district energy technology and integrated systems that provide one or more forms of thermal energy or a combination of thermal energy and electric power from a central plant(s) to meet the heating, cooling, or combined thermal energy and power needs of end-users in two or more structures. The TC collects and disseminates information on regional resource planning including the design, performance, economic analysis, operation and maintenance of central plants, distribution networks, and consumer limited to materials, construction methods, heat transfer, fluid flow, and measurement. The scope of the TC includes the development and assessment of associated technologies for energy use sections.

2. General introductions
   A. 33 persons in the room.
   B. Handouts
      i. TC 6.02 District Energy Meeting Agenda
      ii. 2019 Winter Conference, Atlanta Draft Meeting Minutes
      iii. 2019 Annual Conference, Kansas City Draft Meeting Minutes
      iv. IDEA Liaison report, 2020-01-09 by John Andrepont
   C. Review of Current Voting Members and TC officers, Quorum is met.

3. ASHRAE Code of Ethics Commitment – Announced by TC Chair (Alan Neely)

   In this an all other ASHRAE meetings, we will act with honesty, fairness, courtesy, competence, integrity and respect for others, and we shall avoid all real or perceived conflicts of interest. (see full code of ethics: https://www.ashrae.org/about-ashrae/ashrae-code-of-ethics.)

4. New Business-
   A. Guest - Dr. Alexander Zhivov from the USACE discussed and reviewed...
      ii. TC 7.6 would like a Co-Sponsor. Concept is for “system architecture”. Resilience and reliability type of guide. Net-Zero Planner is the tool. They would like for TC 6.2 to review this guide as well. Their intent is to publish an ASHRAE Guide.
iii. Dr. Zhivov is to contact the Chair to request TC 6.2 review
iv. TC 6.2 to co-sponsor and review the USACE Guide. Steve Tredinnick, Jessica Mangler and
(1) Motion by Jessica Mangler, 2nd by Steve Tredinnick, All 7-0-0

B. Update on the November 2019, TC re-organization by Section 6 Head, Dawen Lu
   i. The TC must review the status annually, add to agenda
   ii. Format has changed to a large TC and then breakout into Sections.

5. Meeting Minutes
   A. January 2019, Winter meeting in Atlanta, GA
      i. Minor modifications, approved by vote. Motion by Geoff Barnes, 2nd by Betsy Goll, All 7-0-0
   B. June 2019, Annual meeting in Kansas City, MO
      i. Minor modifications, approved with modification Motion by Steve Tredinnick, 2nd by Geoff
         Barnes, All 6-0-1

6. Announcements by Chair:
   A. CEC call for reviewers: Austin 2020 Annual Meeting and others. Contact Tiffany Cox (tcx@ashrae.org)
      and copy TC Chair, Alan Neely and Vice Chair, Jessica Mangler.
   B. TC reorganization was reviewed.
      i. Mergers are still being reviewed.
      ii. Comments by TC were received and the earliest would be at the Austin meeting.

7. Membership
   A. Members & Guests Introductions, roundtable introductions
   B. Review of Current Voting Members and TC officers
   C. Recruiting of new members and officers for this technical committee (TC 6.02).
      i. Alec Cusick, ASHRAE Member #8376526
      ii. Gary Phetteplace, ASHRAE Member #580344
      iii. Nemat Lotfi, ASHRAE Member #443351

8. Visitors and Liaison Reports/Information from other Committee Representatives
   A. DOE: Richard Sweetser
      i. IDEA/DOE are collaborating on some District Energy.
      ii. Decarbonization is not being Federally mandated. Some states do have legislation. NY was used
          as an example. NYSERDA has NO CHP program but will be starting a District Energy Program
      iii. Thermal energy via heat pumps.
      iv. E-Catalog CHP at Lawrence Berkley Labs, Seminar #46 on Tuesday
      v. David Dvorak spoke about the Northeast area activity.
   B. IDEA: John Andrepont
      i. See the 2020-01-09 report attached to the agenda handout and available on the TC webpage.

9. Sub-Committee Reports:
   A. Handbook: Steve Tredinnick (Chair)
      i. Chapter 12 and Chapter 15 were submitted to the Society and they were voted on by the TC in
         Atlanta
      ii. Galley proof received for Chapter 15. Waiting on Society for Chapter 12 Galley Proof.
      iii. June 2020 Elizabeth (Betsy) Goll will take over as Chair.
   B. Membership: John Andrepont (Chair), not present
      i. Chair requested a volunteer for future.
         (1) Alec Cusick, Provisional Corresponding Member #8376526, volunteered
   C. Program: Tim Anderson (Chair)
      i. Chicago 2021 deadline is August 10th 2020.
      ii. Suggested programs, by Chair.
(1) Mohammed reviewed his project A project in Qatar in preparation for the 2022 World Cup that has 4 football (soccer) stadiums. How does one air condition an open Soccer Stadium in the middle of the desert?
   (a) Plant is 1000T per AHU. 80 AHUs using 100%OA. The plant is about 1.5 miles away (piping distribution)
(2) Retrofit projects (Minute maid park) R&R insulation. Lessons learned on large unique projects. It may be better suited for TC 1.8 and possibly joint venture. Alan to review with TC chair.
(3) Tim Anderson mentioned a potential Enwave tour in Chicago.
(4) TC 6.8 – Geothermal, they would be open to team for a program in Chicago. Several good examples could be offered for carbon neutral or net zero. District condenser water system using geothermal. Denver Enwave has a large project that is being presented at IDEA in Denver, week of February 10th 2020.

iii. CEC Tracks for 2020 Annual in Austin
   (1) Fundamentals and Applications
   (2) HVAC&R Systems and Equipment
   (3) Research Summit
   (4) Professional Development
   (5) Grid-Interactive Efficient Built Environment
   (6) Multifamily and Residential buildings
   (7) Resilient Buildings and Communities
   (8) Zero Energy Buildings and Communities, Opportunities and Challenges
   (9) (Mini-Track) Building Myths

D. Standards:
   i. NONE

E. Webmaster: Dan Pyewell (Chair)
   i. Updated website with the current versions of the approved and draft MM.

F. Research: Jay Eldridge (Chair)
   i. Concluding The Turbine Inlet Design Guide. Sponsoring TC 1.10 Chair (Dragos Paraschiv) discussed the versions of the publication and the technical content has been reviewed. The author will be presenting at an ASHRAE conference after the book is published. Newer technology, examples and case studies.
   ii. The District Cooling guide was discussed. The District Cooling Ready, Building, Design and Demonstration. A new owners guide for district cooling, examples, cost, building types will be reviewed.
      (1) Gary wrote it and discussed that the project should be discussed at a later date. The current funding by Empower is status is unknown. Tabled until details can be provided.
   iii. Jay Eldridge would like to step down as the Research Chair. Geoff Barnes will assume the research chair role.

10. Old Business-
   A. None

11. New Business
   A. The passing of TC 6.2 former Secretary, Steve Severini in August of 2019 was announced
   B. Review of the 2020-01-13 email “Share your thoughts…” for a survey from ASHRAE. The TC 6.2 Section head, Dawen Lu requests that everyone respond.

12. Meeting Adjourned at 4:05 pm.
   A. Motion by Geoff Barnes, 2nd by Tim Anderson, all in favor – 7-0-0
   B. Announcement by TC Chair (Alan Neely) to close this session.
Submitted by,
Michael Calabrese
TC 6.02 Secretary
2020-02-03

Subcommittee Meetings - Day, Date, Times, & Location Prior to TC 6.02 Meeting:

TC 6.02 Handbook - Sunday, 1:00 pm – 3:00 pm, Hilton Orlando, Lake Mitzell B
TC 6.02 Program - Sunday, 1:00 pm – 3:00 pm, Hilton Orlando, Lake Mitzell B
TC 6.02 Research - Sunday, 1:00 pm – 3:00 pm, Hilton Orlando, Lake Mitzell B