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# 1791 Tullie Circle, N.E./Atlanta, GA 30329

**404-636-8400**

# 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.)**

TC/~~TG/MTG/TRG~~ No. 2.2 DATE February 3, 2020

TC/TG/MTG/TRG TITLE Plant and Animal Environments

DATE OF MEETING February 3, 2020 LOCATION Orlando, FL

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| MEMBERS PRESENT | YEAR APPTD | MEMBERS ABSENT | YEAR APPTD | EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE |
| Morgan Hayes, Chair VM | 2016 | Andres Alfonso Rojas | 2018 | Rob Bedard |
| Nadia Sabeh, Vice Chair VM | 2016 | Larry Howlett VM | 2016 | Danielle Monfet |
| Craig Burg VM | 2017 | Andres Alfonso Rojas CM | 2017 | Alekhya Kaianathbhatta |
| Joe Zulovich (e) VM | 2014 | Dave Rausch Chair VM | 2016 | Kajen Ethirveerasingham |
| Bill Dean Past Chair CM | 2016 | Carol Donovan CM | 2012 | Niss Feiner |
| Dan Dettmers CM | 2019 | Adam Davis CM | 2018 | Stan Katz |
| Kyle Bowling CM | 2019 | Jim Coogan | 2016 | Dan Larsson |
| Ryan MacGillivray CM | 2019 | Brian Dunn CM |  | Micheal Calabrese |
| Kevin Muldoon CM | 2019 |  |  | Leandro de la Torriente |
|  |  |  |  | Eric Sturm |
|  |  |  |  | Melvin T. Garrett |
|  |  |  |  | Zakriya Mohamd |
|  |  |  |  | Kyle Swenson |
|  |  |  |  | Albert Thompson |
|  |  |  |  | Oumou Sidibe |
|  |  |  |  | Randy Tsao |
|  |  |  |  | Steven Morgan |
|  |  |  |  | Xinlei Wang |
|  |  |  |  | Bruce Straughan |
|  |
|  |
|  |
| **DISTRIBUTION: *All Members of TC/TG/MTG/TRG plus the following:*** |
| TAC Section Head: Jon Cohen |  |
| All Committee Liaisons As Shown On TC Roster* Research Liaison
* Standard Liaison
* Staff Liaison
* 2022 HVAC Applications
 |  |
| Mike Vaughn,Manager Of Research & Technical Services |  |

**Technical Committee 2.2 Plant and Animal Environment February 3, 2020**

# Call to Order

Meeting called to order at 4:24 CST by Chairman Morgan Hayes

# Welcome and Introduction / Attendance Sheet

All in attendance introduced themselves and signed in. A total of 24 persons in attendance, including one remote (Joe Z)

Quorum: Only 4 voting members in attendance.

Quorum: 5 of 8 voting members in attendance. (Note: only 4 voting members originally in attendance, which is reflected by vote for Agenda and Minutes approval)

# Revise and Accept Agenda

Agenda reviewed.

Motion: To accept the agenda.

Moved: Nadia Sabeh Seconded: Craig Burg; **Approved 4 – 0 – 0 CV**

# Approve Minutes from the Previous Meeting

Motion to table the minutes from summer meeting.

Minutes were not presented.

Motion: Table the meeting minutes from summer Houston meeting until they can be consolidated from remote attendees from the meeting.

# Moved: Nadia Sabeh Seconded: Craig Burg ; Approved 4 – 0 – 0 CV

# Report from Section Head

Jon Cohen, corresponding TC2 Section Head:

Reorganization of TCs – Ad hoc committee report on Wednesday (Feb 5) and then moved to TAC. Goal: Streamline the organization. Are there ways to consolidate and/or decrease the number of meeting spaces?

# Announcements

* Seminar and Forum Proposals for Chicago Meeting are due August 3rd
* Nadia Sabeh – To update and submit Meeting Minutes by 2/25
* Morgan Hayes – To Send Meeting Reminder by 5/22
* Next ASHRAE Conference – Austin, TX – June 27th to July 1st
* 2021 ASHRAE Winter Conference – Chicago, IL – Jan 23-27
* 2021 ASHRAE Summer Conference – Phoenix, AZ – June 26-30

# Roster & Status of the committee

We need a Vice Chair position. Expectation is to have independent Vice Chair and Secretary positions. Chair is the only person that needs to be a voting member. Vice Chair does not need to be a voting member.

Jon Cohen: We can change status from provisional member to corresponding member at any time.

Program Subcommittee Chair – We need someone new, Alekhya volunteered for this role

Research Subcommittee Chair: David Rausch wants to keep this role

Standards Subcommittee Chair: Elect someone in Nadia’s position while she is TC2.2

* Change the position title to “Handbook” chair.
* You can now make edits online.
* No volunteers at this time.

Webmaster Subcommittee Chair: Morgan volnteers to remain in this position.

Volunteers for Voting positions: Aly, Kyle, Mike Calabrese, Eric Sturm

Joe Zulovich will roll off as voting member.

*Volunteers for Vice Chair*: Danielle Monfet

*Volunteers for Secretary*: Michael Calabrese

Motion for Nadia to be promoted to Chair position after Summer meeting in Austin.

Motion to elect Vice Chair and Secretary positions.

All new positions will start tenure Winter 2021.

*Motion to accept all new officer positions*: Joe Zulovich Moves, Nadia Seconds

**Approved CV 4-0-0**.

How many voting members do we want?

Minimum = 6 voting members; Maximum = 18 voting members.

What if we have 4-4-3?

Four names to become voting members.

Motion to accept the 4 volunteers as voting members: Nadia Sabeh Moves Seconded by Craig, Approved CV 4-0-0

Action: Morgan has contacted “legacy” members. Some want to remain, some want off. Some are bad emails addresses. Morgan to update Roster accordingly.

# Handbook – Nadia Sabeh

No updates were made to current Applications Handbook Chapter.

No updates to the grain drying chapter has been proposed. Joe Zulovich volunteers to review the current chapter and make recommendations for edits as needed.

TC 9.8 is working on a new Applications Chapter for Indoor Grow Environments. Spearheaded by Channing from Desert Aire. An overview of indoor grow environments. Will be a be literature review. About 80% complete. Once approved by committee will be sent around to TCs for feedback

Plant and Animal Environments Chapter. Any volunteers to help review the chapter and identify areas that need updating.

Danielle Monfet – Volunteer to review the Chapter.

Niss Feiner – Wants to add dog kennel/housing, anything related to pets. Contact Dave Rausch. We probably need heat, moisture, and ammonia production. If we need to write an RTAR, Morgan will assist putting that together. May include partial coverage of animal shelters, and general housing.

Joe Zulovich – MTG.ACR (air change rate), Henry Hayes is Chair. They have an AHSHRAE-funded project to do a lit review to establish where these ACRs came from. There are 1300 citations. ASHRAE 62.1 is also involved in this. Ventilation rate vs. Ventilation Effectiveness. How to deliver air. We may want to incorporate their findings into our Chapter. Seminar 57 History of ventilation.

Motion: That the handbook be approved as is for this edit period.

# Moved: Bill Dean Seconded Jim Coogan Approved 4 – 0 – 0 CV

# Research – David Rausch

David is absent. Update:

RTAR 187 has passed. Work Statement is due in May. Dave would like to set up more conference calls.

Who wants to help with work statement? Joe, Craig, Morgan, Danielle, Bill Dean.

Can Nadia work on it?

There is a conflict of interest if you want to bid on the work and cannot develop the work statement.

Craig: What other research from the MTG?

Dan Dettmers: Interest in developing research around understanding and defining the loads for different crops and different facilities. Critical to establish latent loads. Include plant physiology

Danielle was in TC4.1 and are interested in co-sponsoring RTAR.

TC2.2 to sponsor, TC4.1 and MTG.CEEA to co-sponsor. Dan volunteers to lead this RTAR.

1. Horse barn and arenas ventilation and dust suppression using water

Proposed by Morgan Hayes

Indoor horse barns are becoming more prevalent. Without proper ventilation, there is concern that moisture will build up, increasing health risks for horses and condensation forming on interior surfaces of building.

Morgan: to identify doesn’t know what is the right question to ask? What is the primary problem to solve around the moisture generation in these facilities?

Morgan: What is the right question to ask? Wants to characterize moisture and dust loads.

Joe: Dust is knocked down by water. Operators don’t want to pay for managing moisture or adding heaters. If they heated, it would dry the dust, but then they would need to add more moisture and ventilate to remove water vapor?

Questions to resolve: How much ventilation? How to use it effectively?

What ventilation is effective at controlling moisture, heat stress, and particulate matter? We have a very large moisture load, but maybe no heat load.

Kevin and Joe to help Morgan.

# Programs – Carol Donovan (Absent)

Discussion led by Morgan Hayes and Nadia Sabeh

Technical Track was submitted: HVACR for Controlled Environment Agriculture

They liked the idea. Thought it was relevant. Perhaps too narrow in scope. Suggested adding animal environments to the track. Add post-harvest and post-processing?

This Technical Track would happen during Phoenix 2021.

Aly will champion the effort on that track. Do we have dates for when proposed track session titles need to be submitted? Paper submissions probably

Ryan MacGillory – he may be the CEA Technical track Chair

Jon Cohen: Get space in Austin and get program chairs from other TCs to plan the track. This will give us the greatest influence on how the Track is developed. Make sure that other TCs would be interested and co-sponsor.

This year’s program session co-sponsored with TC1.5. 215 seats, 250 occupancy, standing room only. Had to turn people away due to fire code

Paper Session 10: CFD for dairy barns. Speaker from Ontario w/consulting firm.

TC4.10 interested in CFD modeling for indoor farms.

# Old Business

None.

**MTG.CEA – Kevin Muldoon**

Developed and sponsored by TC9.8

MTG.CEA was approved. 40 attendees. 8 TCs represented. 8 other TCs identified as possibly participating.

Lit Review subcommittee = Nadia and Craig to help compile references.

If other TC 2.2 members know of literature that should be included and that they reference frequently, please send to Nadia, Craig, and/or Kevin

**MTG.ACR – Joe Zulovich**

Joe to forward the meeting minutes to Morgan to add to website.

**ASABE/ASHRAE Standard X653**

HVAC for Indoor Plant Production without sunlight.

We are making good process.

Submitted the first draft to the committee for review in December and received comments in January. Goal to make edits and revisions and resubmit for committee review in the Spring with new committee comments to review by ASABE meeting in Summer.

Goal to submit for public review before Chicago.

# New Business

Opportunities for ASABE collaborations:

Two

1. Design values for emergency design ventilation of livestock and poultry. Minimum ventilation to keep animals alive and need for emergency
2. Ventilation design for livestock and poultry shelters. Mechanical ventilation updates.

ASABE is doing the literature review.

Writing and/or reviewing these documents. They may be merged into one document. Morgan and Joe are in the group. If others are interested, please let Morgan know.

Want to reflect new research and data in both ASABE and ASHRAE Applications Handbook update to make sure that the data and information matches.

# Adjourn

Motion: Craig Berg, Adjourn at 6:24

# Moved: Nadia Sabeh Seconded: Approved 4 – 0 – 0 CV