BOARD OF DIRECTORS MEETING

Open Session Agenda

Wednesday, June 28, 2023 | 2:00 – 6:00 pm EST (UTC-04:00)

JW Marriott Tampa | H.B. Plant Ballroom (2)

https://ashrae.webex.com/weblink/register/rceb2ac820803f1578e9781bae1833710

The Board meeting will be preceded by the closing of the 2022-23 Meeting of the Members by President Farooq Mehboob.

1. **CALL TO ORDER -** Scoggins

2. **CODE OF ETHICS -** Scoggins

   In this and all other ASHRAE meetings, we will act with honesty, fairness, courtesy, competence, inclusiveness and respect for others, which exemplify our core values of excellence, commitment, integrity, collaboration, volunteerism and diversity, and shall avoid all real or perceived conflicts of interest.
   (Code of Ethics: https://www.ashrae.org/about/governance/code-of-ethics)
   (Core Values: https://www.ashrae.org/about/ashrae-s-core-values)

3. **ROLL CALL/INTRODUCTIONS -** Scoggins

4. **REVIEW OF MEETING AGENDA -** Scoggins

5. **OPEN SESSION - Addresses to the Board of Directors**

6. **REPORT OF THE 2023 ANNUAL MEETING -** Littleton

   A. Report on Spring 2023 Member Ballot

   B. Tampa Annual Meeting Recap

7. **CONSENT MOTIONS -** Scoggins

   A. Appointment of Investment Advisor

   B. Appointment of Certified Public Accountant

   C. Bank Resolutions

   D. Legal Counsel

8. **COUNCIL REPORTS**

   A. Members Council - Scoggins

   B. Publishing and Education Council - Austin

   C. Technology Council - Rakheja

*Indicates Attachment

9. COMMITTEE REPORTS

A. Executive Committee

i. June 28, 2023

B. SRC – Rakheja (Ken Cooper)

C. Development Committee – Austin (Tiffany Bates Abruzzo)

D. Audit Committee - Jensen

10.* ASHRAE SCOPE 3 EMISSIONS REPORT AND IMPLICATIONS - Scoggins

11. 2023-24 GOALS – Scoggins

12. 2023-24 BOD MENTORS – Scoggins

13. EXECUTIVE SESSION (Separate Agenda)

14. OLD BUSINESS

A.

15. NEW BUSINESS

A.

16. INFORMATION ITEMS

A.* 2023-24 Appointments and Board Elected Positions – Scoggins

B.* 2023-24 CRC Schedule

C.* Conflict of Interest Form (Submit by July 1, 2023)

17. UPCOMING MEETINGS

BOD Annual Meeting Dinner
Wednesday, June 28, 2023 | 6:30 – 8:30 pm | Marriott Water Street, Terrace Room

Fall Meetings | ***October 18-20*** |***ASHRAE HQ***
Strategic Planning Session
Wednesday, October 18, 2023 | 1:00 – 5:00 pm
Thursday, October 19, 2023 | 9:00 am – 1:00 pm

BOD Meeting
Wednesday, October 19, 2023 | 2:00 – 6:00 pm

ExCom Meeting
Thursday, October 20, 2023 | 9:00 am – 12:00 pm

18. ADJOURNMENT

*Indicates Attachment

GHG Emissions Reductions Recommendations for ASHRAE

Prepared for:

ASHRAE®

Prepared by:

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SCSglobal SERVICES
Setting the standard for sustainability™

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Introduction

The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) is non-profit professional association based in the United States that focuses on developing standards for the design and construction of heating, ventilation, air-conditioning, and refrigeration systems. With over 50,000 members located in more than 130 countries worldwide, ASHRAE is supported by a large network of local chapters and volunteers. The organization has facilities located in Georgia, Washington, D.C., and Dubai, where it directly employs over 100 people.

ASHRAE commissioned SCS Global Services (SCS) to measure the company-wide greenhouse gas (GHG) inventory for its fiscal year 2021 (July 1, 2021 – June 30, 2022), which was selected as the base year period for the greenhouse gas inventory. The organizational boundaries of the greenhouse gas inventory assessment were established using the operational control approach as defined by The Greenhouse Gas Protocol. The operational boundaries included Scope 1, Scope 2, and select Scope 3 categories.

Table 1. *Base year GHG inventory results and overall contribution for ASHRAE in FY2021 in metric tons CO_2e.*

FY2021	Subcategory	GHG Emissions in MT CO_2e	% Contribution
Scope 1	Refrigeration	284	9%
	Scope 1 subtotal	**284**	**9%**
Scope 2	Purchased Electricity	121	4%
	Scope 2 subtotal	**121**	**4%**
Scope 3	Purchased Goods & Services	1,200	38%
	Fuel and Energy Related Activities	29	1%
	Upstream Transportation & Distribution	458	15%
	Waste Generated in Operations	11	<1%
	Business Travel	794	25%
	Employee Commuting	258	8%
	Scope 3 subtotal	**2,751**	**87%**
TOTAL		**3,156**	**100%**

Table 1 depicts the breakdown of ASHRAE's FY2021 emissions by Scope and category. Greenhouse gas emissions are classified in Scopes 1, 2, and 3. Scope 1 emissions refer to those generated from company-owned and controlled resources, such as machinery and vehicles. Scope 2 emissions arise with the generation of purchased electricity required for lighting, air-conditioning, and use of appliances. Lastly, Scope 3 emissions include indirect emissions associated across the value chain.

In FY2021, ASHRAE reported Scope 3 emissions data in six categories: Purchased Goods & Services, Fuel and Energy Related Activities, Upstream Transportation and Distribution, Waste Generated in Operations, Business Travel, and Employee Commuting.

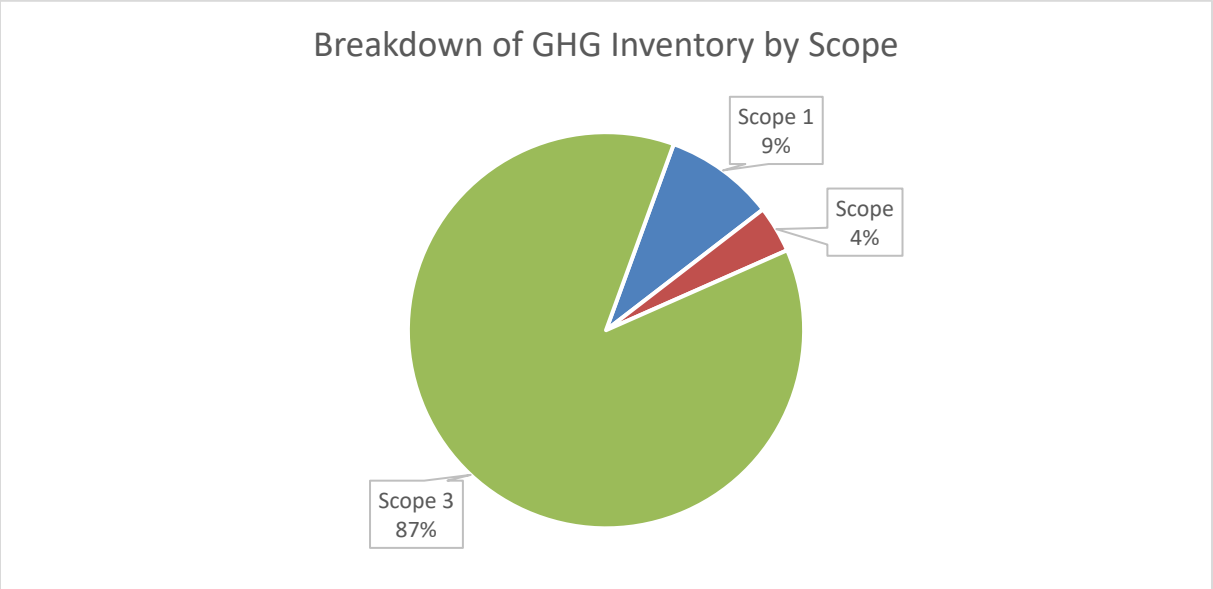


Figure 1. % Breakdown by Scope for ASHRAE in FY2021

As shown in Table 1 and Figure 1, Scope 3 emissions account for the vast majority of ASHRAE's GHG inventory at an overall contribution of 87%. Figure 2 below depicts a more granular breakdown of ASHRAE's emissions by source, highlighting Purchased Goods & Services and Business Travel as the two highest contributors to the overall inventory at 1200 MT CO_2e and 794 MT CO_2e, respectively.

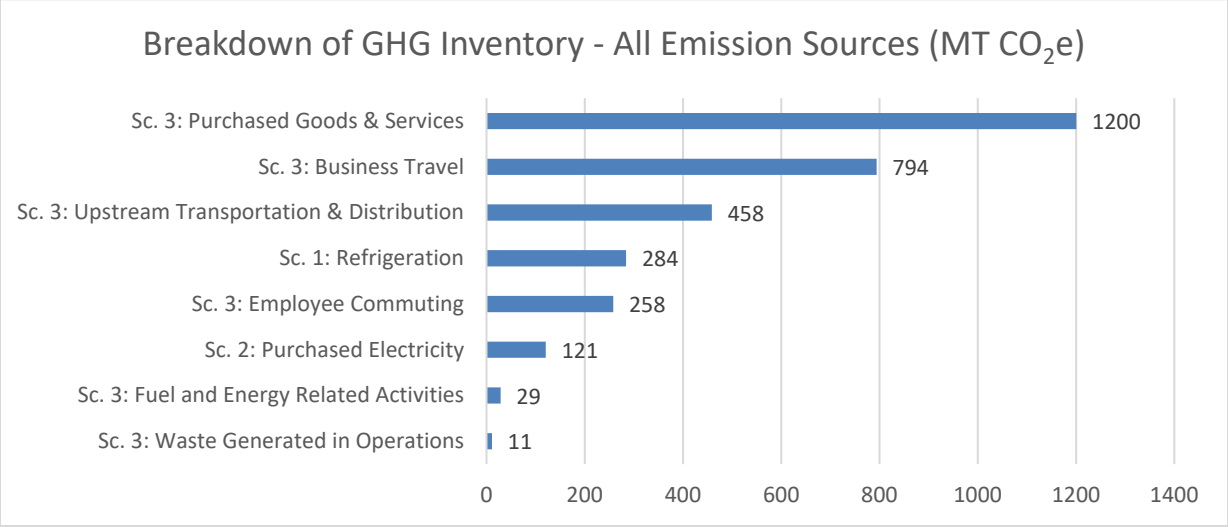


Figure 2. Total GHG emissions by source for ASHRAE in FY2021

Peer Analysis and Benchmarking

A survey[1] of 24 organizations in the nonprofit sector was conducted by "The New Humanitarian" to assess the landscape of GHG emissions assessments, the development of emissions reductions targets, and the use of carbon offsets. The results of this survey have been tabulated below and can be used to guide ASHRAE and its future sustainability-related decisions and targets.

Table 2. Carbon Assessment and Reduction Activities across Humanitarian Organizations.

	Humanitarian Organization	Carbon Footprint Assessment completed	Emissions reduction commitment	Use of carbon offsets
1	**Action Against Hunger**	Partial footprint. Aims to count all emissions by 2022.	Committed to reduce carbon footprint by 50% by 2030.	None currently.
2	**Agency for Technical Cooperation and Development**	Complete footprint: Scope 1, Scope 2, and Scope 3.	Signed the Climate and Environment Charter for Humanitarian Organizations. Also committed to reduce its footprint by at least 30% by 2025, 50% by 2030.	Offsets emissions from international flights.
3	**Cooperative for Assistance and Relief Everywhere**	Partial footprint: Scope 1, Scope 2, and limited Scope 3.	Signed the Climate and Environment Charter for Humanitarian Organizations. No specific reduction targets.	Currently offsetting through in-house projects rather than external credits.
4	**Catholic Relief Services**	Currently designing baseline study.	Signed InterAction's Climate Compact.	None currently.
5	**Danish Refugee Council**	Baseline study finalized in 2021.	Signed the Climate and Environment Charter for Humanitarian Organizations.	None currently.
6	**Food and Agriculture Organization of the United Nations**	Partial footprint: Scope 1, Scope 2, limited Scope 3.	Committed to reduce the amount of greenhouse gases by 45% by 2030, compared to 2018 figures.	Yes; Clean Development Mechanism

[1] Salzenstein, L., & Pedersen, K. (2021, October 27). *What's the aid sector's carbon footprint?* The New Humanitarian. Retrieved June 9, 2023, from https://www.thenewhumanitarian.org/investigations/2021/10/27/aid-sector-carbon-footprint-environmental-impact

7	**International Committee of the Red Cross**	Complete footprint: Scope 1, Scope 2, and Scope 3.	Signed the Climate and Environment Charter for Humanitarian Organizations. Also committed to reduce carbon footprint by 50% by 2030, compared to 2018 figures.	None currently
8	**International Federation of Red Cross and Red Crescent Societies**	Unknown	Signed the Climate and Environment Charter for Humanitarian Organizations.	None currently as federation. Some national societies are.
9	**International Organization for Migration**	Partial footprint under UN common boundary	No specific emissions reductions targets. "Committed to mainstream environmental sustainability..."	Yes; Clean Development Mechanism
10	**International Rescue Committee**	Partial footprint: Scope 1, Scope 2, and business travel	Signed the Climate and Environment Charter for Humanitarian Organizations.	None currently
11	**Mercy Corps**	Complete footprint	Signed the Climate and Environment Charter for Humanitarian Organizations. Emissions reductions targets TBD.	None currently
12	**Medecins Sans Frontieres**	Partial footprint: Scope 1 and Scope 2, major Scope 3 sources	Operational entities to reduce at least 50% by 2030 to 2019 baseline.	None currently
13	**Norwegian Refugee Council**	Partial footprint: Scope 1 and Scope 2.	Signed the Climate and Environment Charter for Humanitarian Organizations. No specific emissions reduction targets.	None currently
14	**UNOCHA**	Partial footprint under UN common boundary	N/A	Yes; Clean Development Mechanism
15	**Oxfam**	Partial footprint: 20 members estimate emissions independently	Signed the Climate and Environment Charter for Humanitarian Organizations	None currently; but some affiliates do
16	**Save the Children**	Partial footprint: energy, business travel, and freight. PG&S excluded.	Signed the Climate and Environment Charter for Humanitarian Organizations	None currently

17	**UNDP**	Partial footprint under UN common boundary	Reducing emissions by 25% by 2025 and 50% by 2030	Yes; Clean Development Mechanism
18	**UNFPA**	Partial footprint: Scope 1, Scope 2, and limited Scope 3.	Reducing emissions by 30% by 2025 and 45% by 2030	Yes; Clean Development Mechanism
19	**UNHCR**	Partial footprint: Scope 1, Scope 2, and limited Scope 3.	Committed to reducing by minimum of 45% by 2030	Yes; Clean Development Mechanism
20	**UNICEF**	Partial footprint: Scope 1, Scope 2, and limited Scope 3.	Committed to reducing by minimum of 45% by 2030	Yes; Clean Development Mechanism
21	**UNRWA**	Partial footprint: Scope 1, Scope 2, and limited Scope 3.	TBD	None currently
22	**World Food Programme**	Partial footprint: Scope 1, Scope 2, and limited Scope 3	TBD	Yes; Clean Development Mechanism
23	**World Health Organization**	Partial footprint: Scope 1, Scope 2, and limited Scope 3.	TBD	None currently
24	**World Vision**	Unknown	TBD	None currently

Table 3. Survey response summary based on carbon footprint measurement.

Survey Response	# Organizations	% of Total
Partial footprint	17	71%
Complete footprint	3	13%
Baseline study under review	2	8%
Unknown	2	8%

As is evident in Table 3, many of these highlighted organizations have taken the initial steps towards quantifying their corporate emissions and clearly establishing an emissions reduction target. It should be noted that the article referenced to populate the table above was written in 2021 and there may be more updated information regarding carbon footprint assessments or emission reduction targets on the individual organization websites.

Recommendations

Table 4. GHG Emission Reduction Recommendations

#	Recommendation	Relevant Scope	Category	Focus Area(s)
1	Conduct audit of all HVAC systems to ensure maximum efficiency	Scopes 1 and 2	Refrigeration, Purchased Electricity	Fuel and energy efficiency
2	Invest in renewable energy generation via increased generation or RECs	Scope 2	Purchased Electricity	Renewable energy
3	Transition to higher-quality data collection	Scope 3	All Scope 3	Data collection
4	Conduct internal audit of waste streams	Scope 3	Waste Generated in Operations	Waste disposal methods
5	Integrating sustainable criteria into business travel decisions	Scope 3	Business Travel	Air travel and hotel stays
6	Minimize business travel wherever possible by engaging virtually	Scope 3	Business Travel	Air travel and hotel stays
7	Incentivize sustainable commuting and remote working for employees	Scope 3	Employee Commuting	Carpooling, public transit, WFH
8	Conduct educational seminars with suppliers and extended supply chain on the importance of prioritizing sustainability	Scope 3	Purchased Goods & Services, Upstream Transportation and Distribution	Supplier engagement
9	Reduce volume of print media, including publications	Scope 3	Purchased Goods & Services, Upstream Transportation and Distribution	Digitization

Rec #1 Conduct audit of HVAC systems to ensure maximum efficiency

Heating, Ventilation, and Air Conditioning (HVAC) systems can be responsible for up to 40% of energy use in a building and contribute to both Scope 1 and 2 emissions. Refrigerant recharge is captured within Scope 1, which currently contributes 9% to the overall footprint. Ventilation and air conditioning are captured under Scope 2, purchased electricity, which contributes 4% to the overall footprint. All these functions are essential for a productive working environment, but they can operate at varying levels of efficiency. There are several measures that ASHRAE can take to ensure maximum efficiency and operation of its HVAC equipment.

First, ASHRAE can get their main HVAC system surveyed annually for maintenance and specifically inquire into whether it would be beneficial to retrofit any components (i.e., compressor, fans) that are getting older and less efficient. In the case of leased spaces, this may require engaging with property managers to determine what types of checks are being conducted and with what frequency. It may even be the best option, in the long term, for ASHRAE to have a completely new and upgraded systems installed in the buildings they occupy. Second, ASHRAE can ensure that all air filters, ducts, and/or external components to the HVAC system are clean and functioning optimally. These integral components should be checked in a regular maintenance check if not already done so. Examining and implementing small changes such as those listed above has the potential to significantly reduce the Scope 1 and 2 footprint of ASHRAE.

Aside from auditing the HVAC systems, ASHRAE can consider implementing changes for natural ventilation to reduce the demand of A/C (and heating) altogether. Sunlight, local wind patterns, external/internal foliage are all elements that can be leveraged to incrementally change the inside temperature without additional energy consumption.

Pathway

ASHRAE should consult with technical experts to audit their HVAC system and determine whether it needs retrofitting or replacement. ASHRAE should also put in place a regular maintenance plan to ensure that all interior and exterior components which can collect dust, dirt, and/or other debris are cleaned periodically. In the case of leased spaces, opening a dialogue with property managers to discuss these topics may prove beneficial to obtaining greater knowledge about the efficiency of its spaces and achieving emissions reductions.

Ease of Implementation	Time	Emissions Reduction Potential
High	Less than 6 months	**Greater than 5%**
Medium	**6 months - 3 years**	2-5%
Low	Greater than 3 years	Less than 2%

Rec #2 Invest in renewable energy generation via increased generation or RECs

Given that ASHRAE is already engaged in on-site renewable energy production, the most ideal route for emissions reductions would be to increase generation to meet total demand. There are many factors to consider in order to achieve this goal, however, and there are often limitations to capacity due to physical or monetary constraints. If increased generation proves too great a task to meet energy demands for ASHRAE, Renewable Energy Credits offer an alternative to help reduce emissions.

Renewable Energy Credits (RECs) are an increasingly common strategy for companies to participate in and support green initiatives while also benefiting the GHG inventory of their company. The purchase of 1 REC represents 1 MWh of energy generated from renewable resources. If purchased within the reporting period, this renewable energy can be directed towards a company's Scope 2 emissions total, lowering their overall footprint.

Any person or entity is eligible to purchase RECs in the amount they desire. Costs of RECs vary based on the location. Certain states have a voluntary market wherein utilities are not required to purchase a minimum number of RECs, but in other more compliance heavy states, utilities are required to purchase a minimum amount. Cost variables include size of purchase, preferences in renewable energy mixes, and current regulatory policies in place. Though it may be more cost effective to purchase from a voluntary market, purchasing RECs from nearby sites shows support for local renewable energy generation.

Additionally, ASHRAE can consider participating in the RE100 program which promotes companies to commit to sourcing 100% renewable energy for their operations. If this is of interest, ASHRAE should review the specific joining and technical criteria that have been developed by RE100[2]. Since this is a public facing commitment, this endeavor would take a significant amount of administrative support.

Pathway

SCS recommends that ASHRAE identify any possible opportunities to increase on-site generation of renewable energy to reduce Scope 2 emissions. If this generation cannot meet total demand, ASHRAE should proceed with the purchase of RECs. ASHRAE may conduct its own research and screening to determine which types of projects to support, but should ensure that the RECs are additional, credible, and truly achieving the benefits that they claim.

Ease of Implementation	Time	Emissions Reduction Potential
High	Less than 6 months	Greater than 5%
Medium	**6 months - 3 years**	**2-5%**
Low	Greater than 3 years	Less than 2%

[2] https://www.there100.org/

Rec #3 Transition to high-quality data collection

As outlined in ASHRAE's FY2021 GHG inventory report, several Scope 3 categories incorporated spend-based data in order to produce emissions estimates: Purchased Goods & Services, Upstream Transportation and Distribution, Waste Generated in Operations, and Business Travel. While certain emission factor databases do provide us with the ability the estimate emissions for an organization using expense data, these estimates are often conservative and do not provide the most complete picture of an entity's emission sources.

For Purchased Goods & Services, ASHRAE can transition away from expense data by obtaining the mass of different materials or items procured, such as paper for office use or clothing used for logo wear. For Upstream Transportation and Distribution, more granular data such as total distance traveled by truck and average shipment mass could be incorporated instead of total spend. Waste Generated in Operations is another category where higher quality data remains simple; the mass of waste materials (paper, food waste) by disposal method (recycling, incineration) allows for greater specificity in emissions estimates. Lastly, ASHRAE can improve business travel data by transitioning to air miles instead of spend on airline tickets and the number of hotel nights rather than total hotel spend.

Pathway

SCS recommends that ASHRAE works internally to identify the Scope 3 categories for which data can be realistically improved in subsequent reporting periods. If necessary or helpful, ASHRAE should work with its greater supply chain to obtain high-quality data regarding the mass of materials procured, mass and distance information on freight, mass of waste materials by disposal method, and distance or number of nights data for travel and hotels, respectively.

Ease of Implementation	Time	Emissions Reduction Potential
High	**Less than 6 months**	Greater than 5%
Medium	6 months - 3 years	**2-5%**
Low	Greater than 3 years	Less than 2%

Rec #4 Conduct internal audit of waste streams

Waste generation, while a smaller component of ASHRAE's GHG inventory, represents a simple opportunity to reduce greenhouse gas emissions in a very tangible way. As with different kinds of transportation, different kinds of waste management techniques each have footprints associated with them, some more GHG intensive than others. Recycling and composting, for example, are more climate-friendly alternatives to simply landfilling material and food waste.

Waste streams involve the entire organization and should be treated as such in order to garner further support for climate-friendly policies and reduce emissions from the source. To effectively reduce the footprint incurred by waste generation at ASHRAE, however, the organization must obtain a strong understanding of which activities are contributing to this category of emissions and where opportunities exist to mitigate their impact. As such, SCS recommends that ASHRAE conduct an internal audit of waste streams in order to better understand where to implement new emissions reduction strategies.

Pathway

Conducting an internal audit of waste streams should include as much of the organization as possible. All sources of waste should be considered, from documents to food scraps. Additionally, ASHRAE should collect as much data as possible regarding individual waste streams to identify hot-spots and more accurately report on emissions annually. Once key contributors have been identified, ASHRAE can target those areas for waste reductions, implementing strategies such as educational signage or newsletters that show employees what types of waste belong in which bins, how to deal with food waste, and so on.

Ease of Implementation	Time	Emissions Reduction Potential
High	**Less than 6 months**	Greater than 5%
Medium	6 months - 3 years	2-5%
Low	Greater than 3 years	**Less than 2%**

Rec #5 Integrating sustainable criteria into business travel decisions

For FY2021, Business Travel accounted for 25% of GHG emissions – the second highest contributing category to the overall GHG inventory. Thus, SCS strongly recommends that ASHRAE focus efforts on emissions reduction for this category. One method ASHRAE could employ to help achieve this is integrating sustainable criteria into its business travel decisions. This concept involves both qualitative and quantitative criteria, and is particularly relevant for categories such as hotels, air travel, and car rentals.

For hotels, the amount of estimated emissions per hotel night can change significantly from location to location. While often unavoidable, the impact of hotel stays can be mitigated by ensuring that any necessary hotel nights are as eco-friendly as possible. Hotel eco-certifications, for example, are a simple way to assess a hotel's commitment to reducing environmental impacts. Global certifications such as LEED, Green Globe, Travelife, and Green Seal, among others, are all recognized schemes for conducting such assessments. There are also more regionally-specific certifications ASHRAE can use to guide its booking decisions, such as Energy Star in the US.

For air travel and car rentals, reductions in emissions can come in a more straightforward manner. When choosing flights, ASHRAE can aim for airlines that have transparent environmental goals, while also avoiding more costly (i.e. first-class) travel that incurs more consumption per seat. With car rentals, the organization can vet the vehicles it uses to ensure fuel efficiency, and potentially opt for electric vehicle usage where available.

Pathway

ASHRAE should enhance its business travel-related decisions by considering factors such as eco-certifications and company-wide environmental goals when choosing a provider for future hotels, airfare, and car rentals. Additionally, the organization can promote minimal impact from the travelers themselves by encouraging less-consumptive types of airfare or rental vehicles.

Ease of Implementation	Time	Emissions Reduction Potential
High	**Less than 6 months**	**Greater than 5%**
Medium	6 months - 3 years	2-5%
Low	Greater than 3 years	Less than 2%

Rec #6 Minimize business travel where possible by engaging virtually

Again, given the significant impact of Business Travel on ASHRAE's 2021 GHG Inventory, it is important to take a close look at this category and evaluate any opportunities for improvement. One simple solution for this category is to implement virtual engagement over physical engagement wherever possible.

The COVID-19 global pandemic directly reduced business travel during its peak, creating an atmosphere in which remote communication and engagement became normalized. Business travel is often minimized by organizations now not just for public health and safety reasons, but also for the time and cost savings realized as a result.

Essential and non-essential travel will, in its initial stages of deliberation, seem to be a highly subjective distinction, but there are certain variables that ASHRAE can consider while making this determination at the organization level (cost, distance, etc.). Doing so will also give employees better direction at the individual level about the necessity to travel. ASHRAE leadership can put appropriate systems and tools into place so that individuals can track their travel on a yearly basis rather than an ad hoc manner.

When it comes to major conferences, ASHRAE can research and implement creative strategies that foster virtual communication online without hindering interaction. Establishing the infrastructure for meaningful, virtual engagement in major conferences – in addition to encouraging such attendance – may prove invaluable in reducing the environmental impacts of these events.

Pathway

ASHRAE should ensure that business travel-related decisions are made with a careful consideration of the environmental impact in addition to other variables such as time, cost, or value. The organization can support low-emitting modes of transportation when booking travel is under their control. Finally, ASHRAE can promote remote engagement whenever possible and ensure that meaningful interactions are taking place. Since travel to major conferences is highly ingrained in ASHRAE's model, an appropriate organizational management and behavior change strategy will need to be leveraged.

Ease of Implementation	Time	Emissions Reduction Potential
High	**Less than 6 months**	**Greater than 5%**
Medium	6 months - 3 years	2-5%
Low	Greater than 3 years	Less than 2%

Rec #7 Incentivize sustainable commuting and remote working for employees

In light of the COVID-19 pandemic, remote working has become commonplace among companies looking to not only reduce infection risk, but to reduce overhead expenses from in-person activities. These reductions in costs are typically met with a reduction in GHG emissions, typically from reduced energy usage and commuting by employees.

SCS understands that ASHRAE has made great strides to provide remote-working opportunities for its employees through a hybrid model. We recommend that ASHRAE build upon this success by continuing to provide these opportunities in the future, allowing employees with flexible schedules to work from home and forego the need for transportation whenever possible. For employees who's in-person presence is critical to company operations, SCS recommends ASHRAE incentivize carpooling or offer public transit vouchers to reduce the impact of commuting on ASHRAE's carbon footprint.

To further exemplify the emissions benefits of working from home, SCS ran a mock calculation assuming all ASHRAE employees solely worked from home throughout the reporting period. An average 8-hour workday was assumed for these employees when estimating their at-home consumption (e.g., lighting, heating/cooling, electricity consumed by equipment). [3] The results of this exercise suggested that ASHRAE's employee commuting emissions could be reduced by more than 20%.

Pathway

SCS recommends that ASHRAE conducts an internal survey to assess the preferences for employees regarding remote working in lieu of in-person office days. Where possible, employees with a preference for remote work could be permitted to continue to do so at their preferred rate. Employees that have a need or preference to work in-person could be connected to organize carpools, or provided with vouchers for public transit with an equivalent buyout presented to those that participate in carpooling.

Ease of Implementation	Time	Emissions Reduction Potential
High	**Less than 6 months**	**Greater than 5%**
Medium	6 months - 3 years	2-5%
Low	Greater than 3 years	Less than 2%

[3] Anthesis Group. February 2021. *Estimating Energy Consumption & GHG Emissions for Remote Workers.* https://www.anthesisgroup.com/wp-content/uploads/2021/02/Anthesis_-Remote-Worker-Emissions-Methodology_Feb-2021.pdf

Rec #8 Organize educational webinars with supply chain

ASHRAE has shown its leadership in ESG by successfully pursuing its FY2021 GHG inventory and a further investigation into emissions reductions strategies. If the bandwidth exists, ASHRAE can consider taking all the learnings from these two projects, as well as actions and strategies slated for the next 5 or 10 years, and have an open and inclusive conversation with its suppliers. ASHRAE can use a webinar format to discuss challenges, successes, and opportunities for improvement that they have identified to prioritize and work to achieve year over year.

ASHRAE has a pre-established relationship of trust and professionalism with many companies in its supply chain. A nudge to transition towards more sustainable operations and decision-making will carry more weight and be better received if it comes from ASHRAE, rather than an outside consulting firm (such as SCS Global Services). Furthermore, how ASHRAE addressed and overcame challenges in its sustainability journey will offer valuable insight to many of its partners and demonstrate ASHRAE's commitment to transparency and collaboration. This spirit is much needed in the sustainability space today and will help a broader set of companies join the transition to a low-carbon economy regardless of their prior experience or knowledge in sustainability.

These webinars will not only increase awareness of energy efficiency, energy conservation, and sustainable materials but also indirectly reduce ASHRAE's carbon footprint (Scope 3). Thus, these webinars also serve as a legitimate and necessary means for emissions reduction.

Pathway

ASHRAE should first identify the appropriate topics, spokesperson(s), and frequency of the seminars. ASHRAE can also ask its supply chain if they are interested in learning more about any specific topics. Having decided on the logistics of the webinar, ASHRAE can lead interactive conversations and provide a platform to exchange ideas, concerns, and solutions for everyone.

Ease of Implementation	Time	Emissions Reduction Potential
High	Less than 6 months	**Greater than 5%**
Medium	6 months - 3 years	2-5%
Low	**Greater than 3 years**	Less than 2%

Rec #9 Reduce volume of print media, including publications

Print media represents a unique opportunity to reduce emissions in ASHRAE's GHG inventory in the way that involves multiple categories, from procurement of materials and assembly (Purchased Goods & Services) to transportation (Upstream Transportation and Distribution) and any disposal activities incurred throughout the process (Waste Generated in Operations).

The primary method by which ASHRAE can reduce the volume of print media it produces is by transitioning to digital media where possible. Using digital materials reduces the need for raw materials used in manufacturing, fuels used to transport and distribute physical media, and the amount of waste created from excess materials and the eventual end-of-life disposal of finished products.

To help ensure the successful digitization of ASHRAE's print media supply chain, ASHRAE should first determine the appetite for such media among consumers and if possible, encourage the transition to digital media using positive environmental statements. While some consumers may prefer print media regardless of impact, others may show interest in mitigating their impact on ASHRAE's (and their own) carbon footprints.

As an additional testament to the power of digitization, the education and media company Pearson highlighted the digitization of its print supply chain as a major contributing factor in its approximately 25% reduction in GHG emissions from 2018 to 2021[4].

Pathway

SCS recommends that ASHRAE conducts research into the demand for the print media it produces and whether or not consumers are open to digital alternatives. ASHRAE can also further encourage these alternatives through the use of positive statements that highlight the benefits of e-books, etc. from an environmental impact standpoint. Whether the organization transitions to fully or partially offering digital media in place of physical publications it is likely to have a positive, material impact on its GHG inventory.

Ease of Implementation	Time	Emissions Reduction Potential
High	Less than 6 months	**Greater than 5%**
Medium	**6 months - 3 years**	2-5%
Low	Greater than 3 years	Less than 2%

[4] https://plc.pearson.com/en-GB/purpose/our-esg-reporting

Best Practices

Publicize sustainability efforts initiated by ASHRAE (past, present, future)

ASHRAE should prioritize disclosing all past, present, and future sustainability initiatives. It is clear from the successful efforts already put forward, such as the FY2021 GHG Inventory and purchase of the GHG Management Tool, that ASHRAE is committed to contributing to a sustainable and low-carbon economy. However, these efforts are not widely known by the greater public. ASHRAE can benefit from disclosing these efforts in addition to any projects that come from implementation of the GHG Emissions Reductions Strategies.

- ✓ A separate section on the ASHRAE website can be dedicated to elaborating on all sustainability efforts.
- ✓ Continue to track ASHRAE GHG inventory year over year using GHG Management Tool made by SCS Global Services.
- ✓ Use calculated GHG inventory to report emissions metrics on website, sustainability reports, disclosure platforms.

Foster communication and engagement internally to solidify company culture

ASHRAE can develop an internal communication platform for employees or open meetings for the company to come together and discuss further sustainability goals, challenges, and progress. Employees and members on the ground implementing emissions reductions strategies can have the opportunity to share solutions and general feedback on the implementation process. Resource allocation for sustainability managers will be made clear after having such meetings, but also the company culture as it pertains to sustainability will continue to strengthen.

It is important for ASHRAE to assign dedicated personnel to foster, monitor, and continuously improve the sustainability program and culture within the company. This employee should be well-versed in sustainability efforts happening at all levels.

Prioritize precise data collection and reporting to quantify emissions reductions

The peer benchmarking gave valuable insight into ongoing efforts at a variety of organizations to track, reduce, and sometimes offset emissions. ASHRAE can continue thorough documentation of all emissions reduction strategies (e.g., LED lighting, purchase of RECs, reduction of Scope 1 emissions by minimizing fuel consumption, etc.), disclosing specific reductions in consumption numbers (kWh, gallons of fuel) and describing the direct correlation to GHG emissions. These metrics will show suppliers and customers that ASHRAE is truly committed to measuring and maximizing their impact.

GHG Emission Reductions Recommendations Workshop

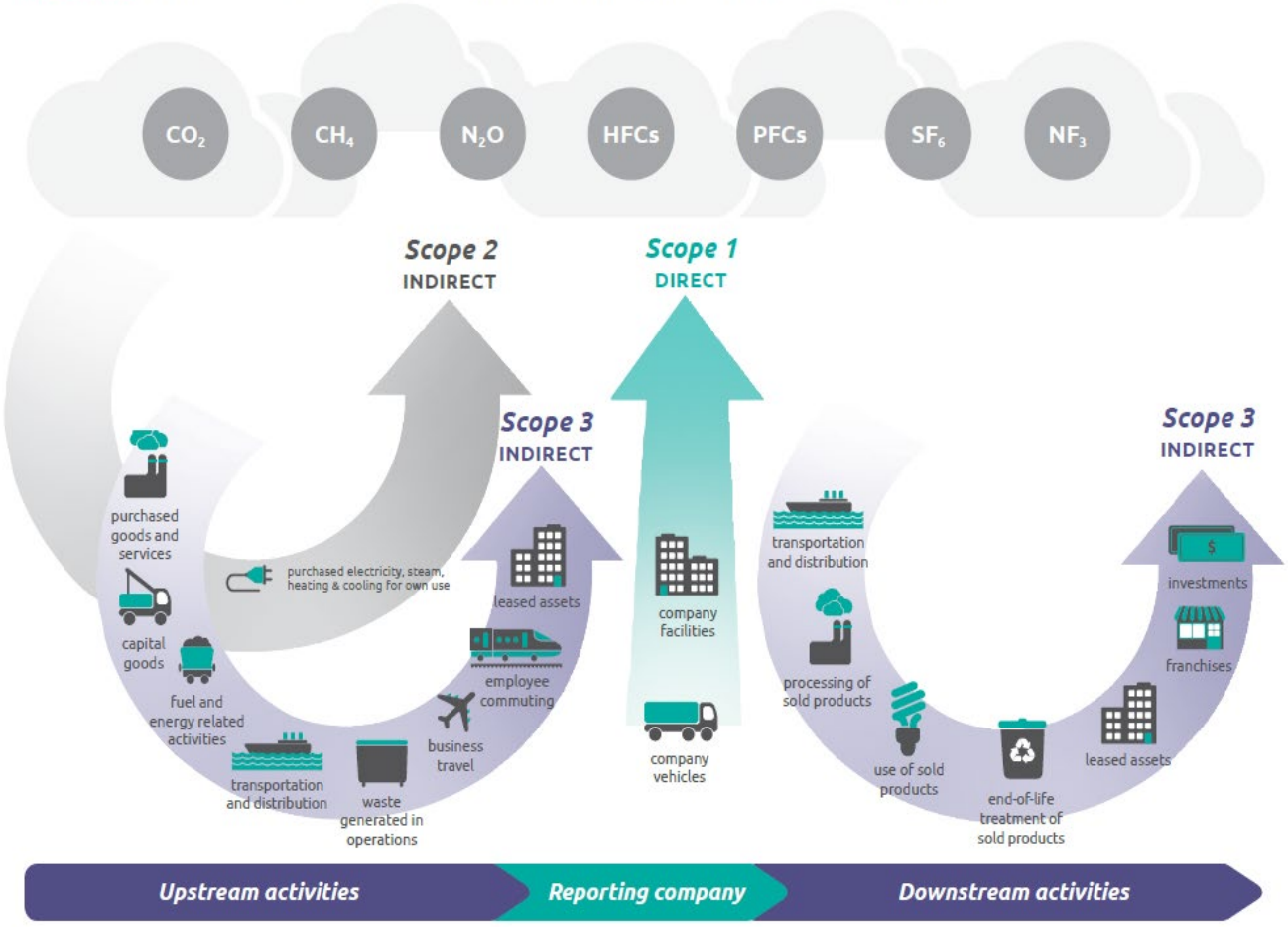
6/13/2023

Agenda

- Overview of GHG Accounting
- Review FY 2021 GHG inventory
- Competitor benchmarking summary
- Elaboration on recommendations
- Discussion on feasibility, anticipated challenges

Overview of GHG Scopes

Figure [I] Overview of GHG Protocol scopes and emissions across the value chain

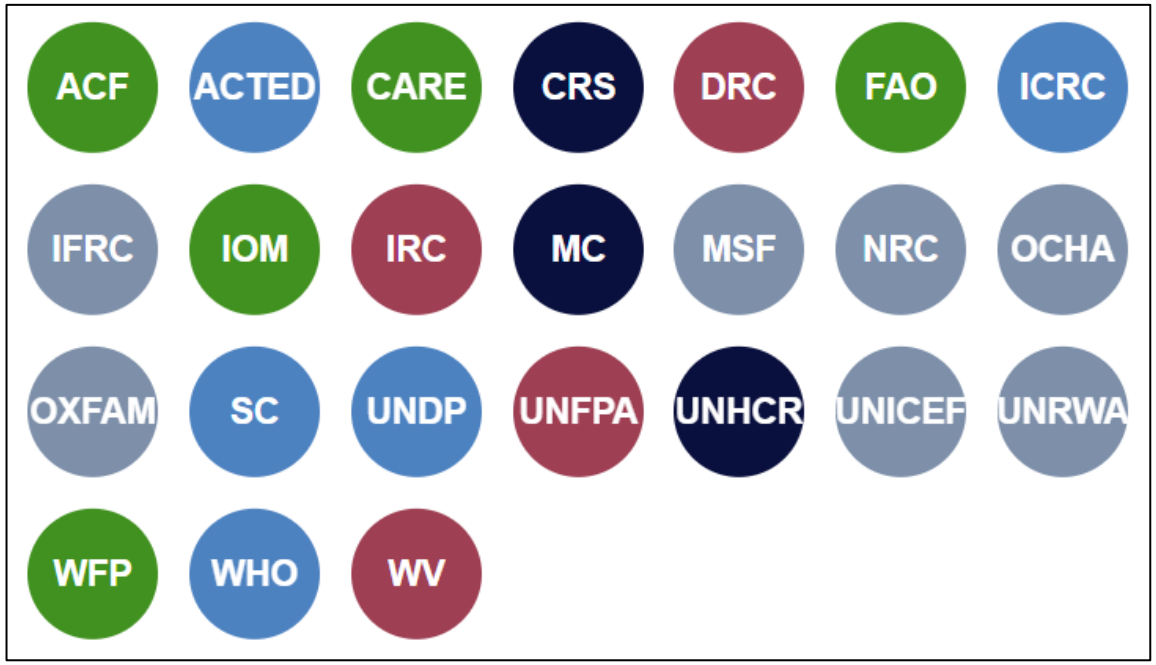


Source: Figure 1.1 of *Scope 3 Standard*.

FY2021 GHG Inventory

Category of Source	Subcategory	Total Results in MT CO_2e	Breakdown by component pollutant			% Contribution to overall footprint
			MT CO_2	MT CH_4	MT N_2O	
Scope 1	*Refrigeration*	284	-	-	-	9.00%
	SCOPE 1 TOTAL	**284**	**-**	**-**	**-**	**9.00%**
Scope 2	*Purchased Electricity*	121	120	0.01	<0.01	3.82%
	SCOPE 2 TOTAL	**121**	**120**	**0.01**	**<0.01**	**3.82%**
Scope 3	*Purchased goods & services*	1200	1072	3.80	-	38.04%
	Fuel and energy related activities	29	22	<0.01	-	0.91%
	Upstream transportation and distribution	458	414	0.93	-	14.53%
	Waste Generated in Operations	11	2	0.33	-	0.36%
	Business travel	794	720	2.57	-	25.16%
	Employee commuting	258	256	0.01	0.01	8.17%
	SCOPE 3 TOTAL	**2751**	**2486**	**7.64**	**0.01**	**87.17%**
TOTAL (Scope 1 + Scope 2 + Scope 3)		**3156**	**2606**	**7.65**	**0.01**	**100.00%**

Benchmarking



24 non-profits surveyed by The New Humanitarian

Primary Q: Has your organization measured its carbon footprint?

Survey Response	# Organizations
Complete footprint	3
Partial footprint	17
Baseline study under review	2
Unknown	2

Benchmarking

Entity	Industry	MT CO2e	Hotspots
Client 1	Technical reviews, publishing (non-profit)	685	Business Travel PG&S Upstream T&D
Client 2	Education, publishing (non-profit)	71,145	Business Travel Upstream T&D Employee Commuting
Client 3	Humanitarian aid (non-profit)	23,464	Business Travel PG&S Employee Commuting
ASHRAE	Professional association (non-profit)	3,156	PG&S Business Travel Upstream T&D

Report Structure

Recommendation

Pathway

Cost	Ease of Implementation	Time	Emissions Reduction Potential
Less than $5,000	**High**	Less than 6 months	Greater than 5%
Between $5-10k	Medium	**6 months - 3 years**	2-5%
Greater than $10k	Low	Greater than 3 years	**Less than 2%**

Rec #1: Conduct audit of all HVAC systems to ensure maximum efficiency

Category: Scope 1 – Refrigerants
Scope 2 – Purchased Electricity

WHAT

Heating, Ventilation, and Air Conditioning systems are all functions essential for a productive working environment

WHY

These systems operate at varying levels of efficiency and can be responsible for up to 40% of energy use in a building

HOW

- Annual maintenance
- Retrofit old components
- Supplement insulation
- Clean equipment located on exterior
- Work with property managers

Rec #2: Invest in renewable energy through increased generation or RECs

Category: Scope 2 – Purchased Electricity

WHAT

Renewable Energy Credits (RECs) are becoming an increasingly common strategy for companies to participate in green initiatives

WHY

Further progress towards a transition of renewable energy generation but also reduce ASHRAE scope 2 emissions

HOW

- Any person or entity is eligible to purchase RECs on the market.
- Consider variables such as local vs. global, project, additionality.

Rec #3: Transition to higher-quality data collection

Categories: Scope 3 – PG&S, Scope 3 – Upstream T&D, Scope 3 – Waste Generated in Operations, Scope 3 – Business Travel

WHAT

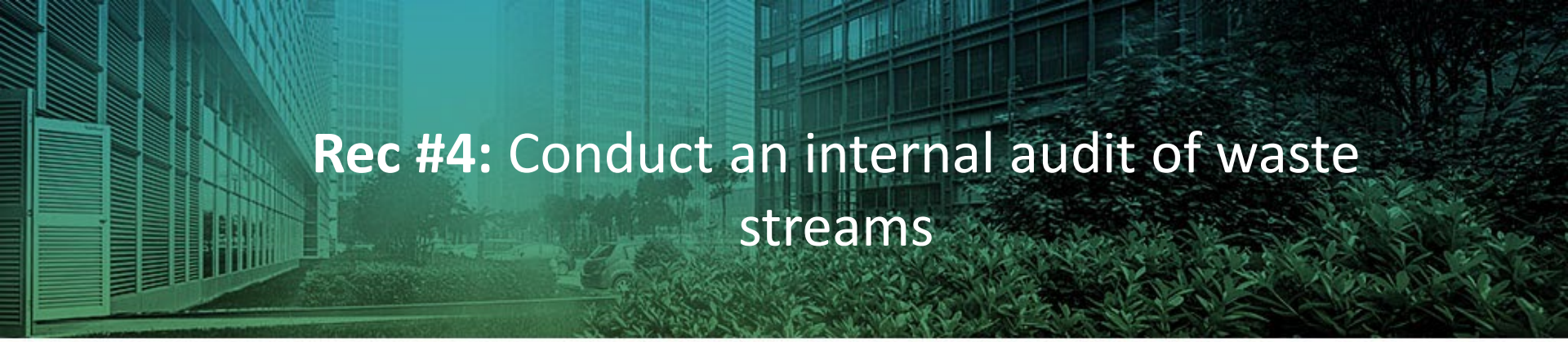
Mass or distance-based calculations often provide a more accurate, less conservative estimate of an organization's emissions

WHY

There are several categories with opportunities for improvement: PG&S (paper, clothing), Upstream T&D (road freight), Waste Generated in Operations, and Business Travel (air miles, hotel nights)

HOW

- Improve internal data collection where possible, identifying realistic opportunities
- Work with greater supply chain to acquire any additional data necessary



Rec #4: Conduct an internal audit of waste streams

Categories: Scope 3 – Waste Generated in Operations

WHAT

Waste generated and disposed of at ASHRAE facilities

WHY

Waste streams involve the entire organization and should be treated as such in order to garner further support for climate-friendly policies and reduce emissions from the source

HOW

- Include all sources of waste, from major events such as conferences to everyday activities
- Identify hotspots and opportunities for improved sorting, reducing quantity, etc.

Questions or comments?

Think about...

- Who from which team will be responsible for implementation?
- What barriers might that team face in doing so?
- For longer-term projects, how will resource allocation be managed?

Rec #5: Integrating sustainable criteria into business travel decisions

Category: Scope 3 – Business Travel

WHAT

Incorporate qualitative and quantitative sustainability criteria into decisions

WHY

Business travel is a significant contributor to the GHG inventory, and intensive activities such as hotel stays, air travel, and car rentals can be made more sustainable

HOW

- Research eco-certifications for hotels to prioritize more sustainable hosts
- Select air travel providers with lofty sustainability goals (Delta, American)
- Consider vehicle type when renting

Rec #6: Minimize business travel where possible by engaging virtually

Category: Scope 3 – Business Travel

WHAT

All modes of travel (air, road, bus, etc.) and hotel stays by employees for business purposes

WHY

Business travel accounted for 25% of ASHRAE's GHG inventory for FY2021: 92% of which was air travel, 8% was hotel stays

HOW

- Create infrastructure for and encourage virtual attendance at major conferences
- Support remote collaboration with internal and external partners

Rec #7: Incentivize sustainable commuting and remote working for employees

Category: Scope 3 – Employee Commuting

WHAT

Scope 3 emissions from employee commuting

WHY

2021 commuting accounted for 8% of ASHRAE's footprint. Commuting, especially via car, is a high emitting activity that can be further reduced.

HOW

- Survey employees to understand preferences
- Incentives or vouchers to encourage public transit and carpooling
- Continue providing WFH opportunities

Rec #8: Organize educational seminars with supply chain

Category: Scope 3 – PG&S, Upstream T&D, Waste Generated in Operations

WHAT

Creating a dialogue with greater supply chain (procurement, transportation, waste)

WHY

- ASHRAE has a pre-established relationship of trust and professionalism
- Potential for valuable insight in addition to emission reductions

HOW

- Identify appropriate topics, spokesperson(s), and frequency of seminars
- Exchange ideas, concerns, solutions

Rec #9: Reduce volume of print media, including publications

Category: Scope 3 – PG&S, Upstream T&D, Waste Generated in Operations

WHAT

Emissions from production, transportation, and future disposal of materials

WHY

- Print media incurs emissions from many sources, and digitization offers a simple solution
- Pearson: over 25% reduction in emissions in 3 years, largely from digitization of print supply chain

HOW

- Determine appetite for print media among consumers
- Encourage transition to digital media using positive, environmental statements

Best Practices

Based on Competitor Analysis and Industry Benchmarking

- Publicize sustainability efforts (past, present, future)
- Foster communication and engagement internally to solidify company culture
- Prioritize precise data collection and reporting to quantify emissions reductions
- Acknowledge challenges and limitations within industry

Questions or comments?

Think about...

- Who from which team will be responsible for implementation?
- What barriers might that team face in doing so?
- For longer-term projects, how will resource allocation be managed?

Final notes…

- Carbon offsets
- Easements
- Confidentiality

Thank you for your time!

Any final questions?

We appreciate your feedback and will be in touch to deliver the final report.

- SCS team

- BOD ExO = Board of Directors Ex Officio
- CO = Coordinating Officer
- VP = Vice President
- DAL = Director-at-Large
- DRC = Director-and Regional Chair
- RAL = Region-at-Large
- RMCR = Region Members Council Representative,
- NVM = Non-voting Member
- * = New Member
- Dir. =Director

2023-24 Standing Appointments & Election Reference

(For Information Only)

This document is a complete listing of standing body appointments and election outcomes within ASHRAE for the Society Year noted with the exception of JEPC, COF, and LMC.

Updated June 2023

Board of Directors

(Members are elected)

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William (Bill) McQuade, Treasurer
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Wade Conlan, VP
Ashish Rakheja, VP
Chandra Sekhar, VP
Jeff Littleton, Secretary

Steven Sill, DRC - I
Ronald (Ron) Gagnon, DRC - II
Mark Tome, DRC - III
Bryan Holcomb, DRC - IV
James (Jim) Arnold, DRC - V
Susanna Hanson, DRC - VI
Scott Peach, DRC - VII
Joseph Sanders, DRC - VIII

Jonathan Smith, DRC - IX
Buzz Wright, DRC - X
Eileen Jensen, DRC - XI
John Constantinide, DRC - XII
Cheng Wee Leong, DRC - XIII
Mahroo Eftekhari, DRC - XIV
Richie Mittal, DRC – RAL
Douglas (Doug) Cochrane, DAL

Drury (Dru) Crawley, DAL
Blake Ellis, DAL
Arthur (Art) Giesler, DAL
Kishor Khankari, DAL
Luke Leung, DAL
Corey Metzger, DAL
Heather Schopplein, DAL
Wei Sun, DAL

Executive Committee

During intervals between Board of Directors meetings, the Executive Committee shall exercise administrative powers of the Board of Directors. Matters of policy determined by the Executive Committee between meetings of the Board of Directors shall be submitted for approval to the Board of Directors at its next meeting.
Members are determined by noted elected position on the Board of Directors.

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Malcolm (Dennis) Knight, President-Elect
William McQuade, Treasurer
George (Billy) Austin, Vice President
Wade Conlan, Vice President
Ashish Rakheja, Vice President
Chandra Sekhar, Vice President
Jeff Littleton, Secretary

Diversity, Equity and Inclusion Subcommittee

Though not identified as a standing body, this subcommittee is an ongoing appointment made by the President-Elect.

Kishor Khankari, Chair
Susanna Hanson, Vice Chair
Mahroo Eftekhari
Cheng Wee Leong
Heather Schopplein
Jonathan Smith
Devin Abellon, Consultant
Dunstan Macauley, Consultant

Strategic Advisory Panel – NEW

Though not identified as a standing body, this panel is an ongoing appointment made by the President-Elect.

Members currently being assigned.

Continued on next page

Councils/ Committees Reporting to the Board of Directors

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In addition to the below, this council includes chairs of committees reporting to the council as voting members, a Planning Committee liaison, and a Developing Economies consultant.

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Bryan Holcomb, Dir. (24)
Eileen Jensen, Dir. (24)
Kishor Khankari, Dir. (24)
Cheng Wee Leong, Dir. (24)
Wei Sun, Dir. (24)
Charles Bertuch (I) (24)
Genevieve Lussier (II) (24)
Sherry Abbott-Adkins (III) (24)
Heather Platt Gulledge (IV) (25)
Julia Timberman (V) (25)
Maggie Moninski (VI) (25)
Carrie Kelty (VII) (26)
Keith Reihl (VIII) (26)
Daniel Russell (IX) (26)
Colin Laisure-Pool (X) (26)
Rob Craddock (XI) (24)
Tulia Rios (XII) (25)
Ching Loon Ong (XIII) (25)
Eduardo Maldonado (XIV) (26)
Mohammed Anbari (RAL) (24)
Tony Giometti, Interim Staff Liaison

Publishing and Education Council

In addition to the above, this council includes chairs of Committees reporting to the council as voting members (excluding the Historical Committee Chair) and Vice-Chairs as non-voting members, a Planning Committee liaison, and a Developing Economies consultant.

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Chandra Sekhar, Vice Chair
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John Constantinide, Dir. (24)
Blake Ellis, Dir. (24)
Arthur (Art) Giesler, Dir. (24)
Mark Tome, Dir. (24)
Suzanne LeViseur, Past Certification (24)
Megan Tosh, Past Handbook (26)
Jason Alphonso, Past Training and Education (24)
Adeeba Mehboob, Past Publications (26)
Mark Owen, Staff Liaison

Technology Council

In addition to the above, this council includes chairs of Committees reporting to the council as voting members and Vice-Chairs as non-voting members, a Planning Committee liaison, and a Developing Economies consultant.

Ashish Rakheja
Wade Conlan
Drury (Dru) Crawley, Dir. (24)
Susanna Hanson, Dir. (24)
Luke Leung, Dir. (24)
Richie Mittal, Dir. (24) & MAL (26)
Steven Sill, Dir. (24)
Constantinos Balaras, Past DRC (25)
Paul Francisco, Past Standards (24)
Carl Huber, Past Technical Activi. (25)
Michael Pouchak, Past Res. Admin. (26)
Christopher (Chris) Phelan, MAL (24)
Larry Smith, MAL (25)
Sarah Maston, Consultant (24)

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Cheng Wee Leong*
Joseph Sanders*
Craig Wright, Staff Liaison

Continued on next page

Councils/ Committees Reporting to the Board of Directors
Continued

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Mike Beda, Life Members Club
Greg Pavlak, Scholarship Trustee*
Dave Branson, College of Fellows
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Lester Periera, RP ExCom
Haley Goslinga, RP ExCom*
Don Colliver, Foundation ExCom
T. Randall (Randy) Jones, Foundation ExCom*
Mike Hart, Foundation ExCom*
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Chuck Gulledge, Consultant
Kirstin Pilot, Development Manager

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Michael Cooper
Chris Gray*
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Ahmed Alaa Eldin Mohamed
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Mahroo Eftekhari, Consultant*
Sheila Hayter, Consultant*
Dunstan Macauley, Consultant
Corey Metzger, Consultant
Heather Schopplein, Consultant*
Michael (Mick) Schwedler, Consultant*
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Spencer Morasch
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Farooq Mehboob, Vice Chair

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III	James Grant	III	Roger Jones
IV	Jimmy Leonida	IV	Charlie Curlin
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VI	Mark Miller	VI	Fiona McCarthy
VII	Karen Thrasher	VII	Tony Horton
VIII	Mark Fly	VIII	Chris Ahne
IX	Jessica Renner	IX	Trent Hunt
X	Robert Kunkel	X	Marites Calad
XI	Jeff Hurd	XI	Greg Fluter
XII	Daniel Rogers	XII	Eduardo Conghos
XIII	Ching Man Tracy pang	XIII	Han Guan Low
XIV	Bratislav Blagojevic	XIV	Marko Ignjatovic
RAL	Krishnan Viswanath	RAL	Abbass Sajid

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Adeeba Mehboob – RAL	Guy Perreault - II
Dunstan Macauley - III	Edward Tsui - XIII
Devin Abellon - X	Bjarne Olesen - XIV
Chris Gray – VII	Lee Millies - V
Sarah Maston - I	Bill Klock - VIII
Costas Balaras – XIV	Karine Leblanc – X

Candace DeVaughn, Staff Liaison

Continued on next page

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Erik Sanchez
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Geoffrey (Geoff) Jenks (XI)*
Timothy Theriault (XII)
Yew Sin (Albert)(XIII)
Ioan Dobosi (XIV)
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Continued on next page

Committees Reporting to Members Council
Continued

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Madison Schultz, Consultant
Ron Gagnon, BOD ExO*
Malcom (Dennis) Knight, CO*
Jeanette McCray, Staff Liaison

Continued on next page

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Kimberly Pierson
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Kurt Monteiro*
Jennifer Isenbeck*
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Kay Thrasher
Atilla Biyikoglu
Javier Korenko
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Harris Sheinman, Chair
Joseph Furman, Vice Chair

Subcommittee for 2024 HVAC Systems and Equipment

Joseph Furman, Chair
Derek A Crowe
Nicolas Lemire
Ahmed Medhat
Satish Iyengar
Chee Sheng Ow

Subcommittee for 2025 Fundamentals

Stephanie Mages, Chair
Sonya Pouncy
Caroline Calloway
Frederic Granzow
Marija S Todorovic
Jeffrey G Boldt

Subcommittee for 2026 Handbook Refrigeration

Adrienne Thomle, Chair
Drake Erbe
Kevin Muldoon
Cameron Labunski
Vance Payne
Zheng O'Neill

Subcommittee for 2027 HVAC Applications

Krishnan Gowri, Chair
Jeff Gatlin
Rex Scare
Mark Miller
Paula Hernandez
Philip Naughton

Continued on next page

Committees Reporting to the Technology Council

Environmental Health Committee

William (Bill) Bahnfleth, Chair
Marwa Zaatari, Vice Chair
Dimitris Charalambopoulos*
Mark Ereth
Benjamin (Ben) Jones*
Howard Kipen*
Linda Lee
Kenneth Mead
Farhad Memarzadeh
Corey Metzger
Conor Murray*
Lisa Ng*
Kathleen Owen
Max Sherman*
Donald (Don) Weekes
Drury (Dru) Crawley, BOD ExO*
Ashish Rakheja, CO*
Steve Hammerling, Staff Liaison

Global Technical Interaction Committee

Members currently being assigned.

Residential Buildings Committee

William (Bill) Healy, Chair
Rachel Romero, Vice Chair
Michael Blanford
Darcy Carbone*
Wesley Davis*
Steven Emmerich
Philip Fairey
Jingjuan Feng*
Dean Gamble*
Jaap Hogeling
Li Lan*
Carol Marriott
Michael Pouchak
Yashkumar Shukla
Pawel Wargocki*
Steven Sill, BOD ExO*
Ashish Rakheja, CO*
Derrick Nesfield, Staff Liaison

Refrigeration Technology Committee for Comfort - Process - Cold Chain

Stephen (Steve) Kujak, Chair
Douglas (Doug) Scott, Vice Chair
Roberto Aguilo
Andrew Beall*
Didier Coulomb
Nicole Dunbar
Ayman Eltalouny
Dustin Lilya*
Apichit Lumlertpongpana
Kashif Nawaz
Bruce Nelson*
Roddam Simha
Harshal Surange
Xudong Wang
Don Brandt, Consultant*
Richie Mittal, BOD ExO*
Ashish Rakheja, CO
Michael (Mike) Vaughn, Staff Liaison

Research Administration Committee
(Members Elected to Committee)

William (Bill) Murphy, Chair
Natascha Milesi Ferretti, Vice Chair
Chris Gray (27) *
Srinivas Katipamula (27) *
Matthew Mullen (27) *
Zheng O'Neill (27) *
Wen Bin (27) *
Dennis Landsberg (26)
Douglas Scott (26)
Carl Huber (26)
James Bogart (25)
Roland Charneux (25)
Jin Wen (24)
Stefan Elbel (24)
Hywel Davies, Consultant (24)
Xudong Wang Consultant (24)
Drury (Dru) Crawley, BOD ExO*
Ashish Rakheja, CO*
Michael (Mike) Vaughn, Staff Liaison

Standards Committee
(Members Elected to Committee)

Jonathan Humble, Chair
Douglas (Doug) Fick, Vice Chair
Kelley Cramm (27)*
Abdel Darwich (27)*
Drake Erbe (27)*
Kenneth Monroe (27)*
Daniel Nall (27)*
Philip Naughton (27)*
Douglas (Doug) Tucker (27)*
Jaap Hogeling (26)
Jennifer Isenbeck (26)
Phillip Johnson (26)
Kathleen Owen (26)
Karl Peterman (26)
Christopher Seeton (26)
Paolo Tronville (26)
Patricia (Pat) Graef (25)
Paul Lindahl (25)
Justin Prosser (25)
William Walter (25)
Julie Majurin (25)
Lawrence (Larry) Markel (25)
Margaret Mathison (25)
Gwelen Paliaga (25)
Gerald Kettler (24)
Jay Kohler (24)
David Robin (24)
James Lutz (24)
Susanna Hanson, BOD ExO*
Ashish Rakheja, CO*
Connor Barbaree, Staff Liaison

Continued on next page

Committees Reporting to the Technology Council
Continued

Technical Activities Committee
(Members Elected to Committee)

James Bennett, Chair
Kevin Mercer, Vice Chair
Jason Atkisson
Vikrant Aute
Tina Brueckner
Ongun Kazanci
Money Khanna
Patrick Marks
Gursaran Mathur
Kashif Nawaz
Lan Chi Nguyen Weekes
Kevin Marple
Douglas Reindl
Satheesh Kulankara
Brad Cochran
TBD
Luke Leung, BOD Ex-O
Ashish Rakheja, CO
Steven Hammerling, Staff Liaison

2023-24 Presidential Appointments (Scoggins)

Appointments as displayed are for the 2023-24 Society year and include ASHRAE Representatives, Intersociety Representatives, Coordinating Groups, Liaison Committees, BOD Ad Hocs, and Task Groups.

***MOU with ASHRAE**

Updated June 2023

Intersociety/ ASHRAE Reps.

Name	Appointees	Position
AABC Commissioning Group *	Wade Conlan	ASHRAE Rep.
AIA Liaison Committee *	Darryl Boyce	Chair
	Bill McQuade	Member
	Dan Nall	Member
AiCARR ASHRAE Group*	Ginger Scoggins	President
	Dennis Knight	President - Elect
	Bill McQuade	Treasurer
American Council of Engineering Companies	Billy Austin	ASHRAE Rep.
American Society for Healthcare Engineering*	Traci Hanegan	ASHRAE Rep.
APPA: Leadership in Educational Facilities *	Dunstan Macauley	ASHRAE Rep.
	Darryl Boyce	Consultant
ASHRAE Collaboration with Egypt Ministry of Environment	Ahmed Alaa	Group Leader
	Mahmoud Fouad	Group Member
	Lina Maged	Croup Member & Coordinator
Building Owners and Managers Association *	Sarah Maston	ASHRAE Rep.
	Bill McQuade	Consultant
CIBSE/ASHRAE Workgroup	Sheila Hayter	Chair
	Tim Wentz	Member
CIBSE/ASHRAE/ REHVA Workgroup	Andres Sepulveda	Chair
	Mahroo Eftekhari	Member
	Jeff Littleton	EVP
Efficient and Healthy Schools Program Partnership with DOE	John Constantinide	ASHRAE Rep.

Global Cold Chain Alliance *	Don Brandt	ASHRAE Rep.
IEQ Global Alliance*	Bill Bahnfleth	ASHRAE Rep.
	Corey Metzger	ASHRAE Rep.
Illumination Engineering Society	Corey Metzger	ASHRAE Rep.
International Association of Plumbing & Mechanical Officials	Phillip Trafton	ASHRAE Rep.
International Code Council	Bill McQuade	ASHRAE Conference Rep.
International Facility Management Association*	Jennifer Isenbeck	ASHRAE Rep.
International Network for Women in Cooling Initiative	Sarah Maston	ASHRAE Rep.
	Sonya Pouncy	ASHRAE Rep.
National Association of Women in Construction	Susanna Hanson	ASHRAE Conference Rep.
National Council of Examiners for Engineering and Surveying - Exam Writer/ Mechanical Engineering Examination	Filza Walters	ASHRAE Rep.
National Council of Examiners for Engineering and Surveying - Item Writer/ Architectural Engineering Examination	Tom Lawrence	ASHRAE Rep.
National Council of Examiners for Engineering and Surveying Participating Organizations Liaison Council – Licensing That Works	Dennis Wessel	ASHRAE Rep.
National Environmental Balancing Bureau	Don Hill	ASHRAE Rep.
National Institute of Building Sciences (NIBS) Board	Chuck Curlin	ASHRAE Rep.
National Institute of Building Sciences (NIBS) Building Information Management (BIM) Council	Jennifer Lather	ASHRAE Rep.
New Buildings Institute	Mick Schwedler	ASHRAE Rep.
PAHO/WHO | Pan American Health Organization	Tim Wentz	Chair
	Wade Conlan	Member
	Ashish Rakheja	Member
	Stephanie Reiniche	Staff
Rocky Mountain Institute	Bill McQuade	ASHRAE Rep.
Technical Advisory Committee of the Clean Cooling Collaborative (KCEP)	Bill McQuade	ASHRAE Rep.
	Dunstan Macauley	ASHRAE Rep.
United Nations Environment Programme*	Tim Wentz	Chair
	Dennis Knight	intended President-Elect
	Bill McQuade	intended Treasurer
	Ahmed Alaa Eldin Mohamed	Member
	Jeff Littleton	EVP
	Mark Owen	Staff

Ad Hocs and Task Groups

Name	Appointees	Position
DEI Subcommittee	Kishor Khankari	Chair
	Susanna Hanson	Vice Chair
	Heather Schopplein	Member
	Jonathan Smith	Member
	Mahroo Eftekhari	Member
	Cheng Wee Leong	Member
	Devin Abellon	Consultant
	Dunstan Macauley	Consultant
	Tanisha Meyers Lisle	Staff
HQ Building Ad Hoc	Darryl Boyce	Chair
	Jayson Bursill	Member
	Don Brandt	Member
	John Constantinide	Member
	Paul Torcellini	Member
	Jeff Littleton	EVP
	Mike Vaughn	Staff
Policies for Collaboration Ad Hoc	Tim Wentz	Chair
	Zeki Poyraz	Member
	Andres Sepulveda	Member
	Apichit Lumlertpongpana	Member
	Ross Montgomery	Member
	Joyce Abrams	Liaison/ Members Council
ASHRAE at International Conferences Task Group	Andres Sepulveda	Chair
	Ron Gagnon	Member
	Art Giesler	Member
	Cheng Wee Leong	Member
	Richie Mittal	Member
	Raul Simonetti	NVM/CEC Chair
	Farooq Mehboob	Consultant
	Tony Giometti	Staff
ASHRAE Task Force for Building Decarbonization - ExCom	Kent Peterson	Chair
	Don Colliver	Vice Chair
	Bing Liu	Member
	Luke Leung	Member
	Clay Nesler	Member
	Blake Ellis	Member
	Stet Sanborn	Member
	Ginger Scoggins	Liaison to the Board of Directors

2023-24 Board Election Subcommittees for 2024-25 SY Council and Committee Nominations

COUNCIL NOMINATIONS

Bill McQuade	Chair
Luke Leung	
Blake Ellis	
Kishor Khankari	

STANDARDS COMMITTEE NOMINATIONS

Chandra Sekhar	Chair
Bryan Holcomb	
Susanna Hanson	

RESEARCH ADMINISTRATION COMMITTEE NOMINATIONS

Ashish Rakheja	Chair
Scott Peach	
Eileen Jensen	

TECHNICAL ACTIVITIES COMMITTEE NOMINATIONS

Billy Austin	Chair
Joe Sanders	
Doug Cochrane	

HANDBOOK COMMITTEE NOMINATIONS

Wade Conlan	Chair
John Constantinide	
Ron Gagnon	

NOMINATING COMMITTEE NOMINATIONS

Dennis Knight	Chair
Buzz Wright	
Mahroo Eftekhari	

2023-24 Additional Presidential Appointments (Other Groups)

Appointments as displayed are for the 2023-24 Society Year and include other groups that are not considered as standing committee or standing body appointments.

Exceptions to the above have been identified via (*) and are included via this listing as the group's composition consists of ASHRAE and non-ASHRAE members.

Updated June 2023

Group/ Committee Name	Appointees	Appointed Position
401k Savings and Investment Committee	Craig Wright	Chair/Comptroller
	Ginger Scoggins	Member
	Jeff Littleton	Chief Staff Officer
Joint Expo Policy Committee*	Tom Watson	Presidential Member
	Billy Austin	Member
	Dunstan Macauley	Member
	Michael Cooper	Member
	Bill Harrison	Consultant
	Suzanne LeViseur	Consultant
	Geoff Stevens	NVM
	Jeff Stevens	NVM
	Mark Stevens	NVM
	Jeff Littleton	NVM/EVP
	Savanna Smith	Staff Liaison
Appeals BOD for Standards	Van Baxter	Chair
	Dean Borges	Member
	Don Brandt	Member
	Doug Cochrane	Member
	Drake Erbe	Member
	Walter Grondzik	Member
	Roger Hedrick	Member
	Sarah Maston	Member
	Craig Messmer	Member
	Lee Millies	Member
	Mick Schwedler	Member
	Adrienne Thomle	Member
	Jim Vallort	Member
	Christopher wilkins	Member
	David Yashar	Member
	Stephanie Reiniche	Staff Liaison

AASA	Bjarne Olesen	Chair
	Farooq Mehboob	Vice Chair
	Ashish Rakheja	Member
	Ginger Scoggins	Coordinating Officer
	Tammy Catchings	Staff Liaison
CIBSE/ASHRAE Liaison Subcommittee	TBD during Wednesday BOD Meeting	

CRC SCHEDULE 2023-24

Fall 2023	Host Chapter/ Location	Alternate Chapter Location	Actual Dates/Target Week	Official Visitor	Staff	CRC General Chair
Region I	Connecticut Hartford, CT	Northeast Albany, NY	August 17-19 TARGET: August 3rd Week	Knight, Austin		Jason Urso
Region II	London (Canada) London, ON, CAN	Toronto Toronto, ON, CAN	August 25-27 TARGET: August 4th Week	Scoggins, Rakheja		Robert (Tom) Pollard Ibrahim Semhat
Region III	Baltimore Baltimore, MD	Lehigh Valley Bethlehem, PA	August 10-12 TARGET: August 3rd Week	McQuade, Crawley		Walter (Brad) Watkins, Jr.
Region IV	Triangle Wilmington, NC	Atlanta Atlanta, GA	August 10-12 TARGET: August 2nd Week	Knight, Sekhar		Chris Y Norwood James K Lee
Region V	Akron/Canton Akron/Canton	Cincinnati Cincinnati, OH	July 27-29 TARGET: July 4th Week	Knight, Rakheja		Conor P Eckhardt
Region VII	Louisville Louisville, KY	Memphis Memphis, TN	July 27-29 TARGET: July 5th Week	Scoggins, Conlan		Kevin Muldoon
Region IX	Rocky Mountain Denver, CO	Ozarks Springfield, MO	August 3-5 TARGET: August 1st Week	Scoggins, Austin		Rachel Romero
Region X	Northern Nevada Reno, NV	Central Arizona Phoenix, AZ	August 18-20 TARGET: August 3rd Week	McQuade, Conlan		Mark Rawson
Region XII	ASHRAE Caricom Trinidad	Brasil Sao Paulo, BRA	August 9-12 TARGET: August 2nd Week	Austin, Conlan		Ian C Weekes
Region XIII	Taiwan Taichung, TWN	Macao Macao, CHN	August 18-19 TARGET: August 4th Week	Scoggins, Sekhar		Ming-shan Jeng
Region XIV	Ireland Galway, IRL	Israeli Jerusalem, ISR	August 11-13 TARGET: September 3rd Week	Scoggins, Rakheja		
RAL	Sri Lankan Colombo, LKA		October 5-8 TARGET: September 3rd Week	Scoggins, Knight, McQuade, Rakheja		M (Nihal) Nanayakkara
Spring 2024	**Host Chapter/ Location**	**Alternate Chapter Location**	**Actual Dates/Target Week**	**Official Visitor**	**Staff**	**CRC General Chair**
Region VI	Cedar Valley Cedar Rapids, IA	Iowa Des Moines, IA	April 11-13 TARGET: May 1st Week	Knight, Austin		Ryan P Collins
Region VIII	Dallas Dallas, TX		April 26-28 TARGET: April 4th Week	Knight, Conlan		Pamela L Duffy
Region XI	Inland Empire Spokane, WA	Oregon Portland, OR	May 9-11 TARGET: May 2nd Week	Knight, Sekhar		David Reames

Distribution: ExCom, DRCs, Littleton, DeVaughn, ASHRAE Directors, Giometti, Mumford, Gurley, Masterson, Thomson, McHan, Keller, Ratcliff

Revised April 14, 2023

Organization name ASHRAE

Board member name _____ **Title** _____

Please answer the following questions regarding board independence and relationships

	Yes	No
1. Were you compensated as an officer or other employee from this or a related organization?	☐	☐
2. Did you receive total compensation or other payments exceeding $10,000 for the year from this or a related organization as an independent contractor? (Excluding reimbursement of expenses or reasonable compensation for services provided as a board member.)	☐	☐
3. Did you receive, directly or indirectly, material financial benefits from this or a related organization, including:		
a. Loans between you and the organization?	☐	☐
b. A transaction in which an economic benefit is provided to you, directly or indirectly, and the value of the economic benefit provided exceeds the value of the consideration (including the performance of services) received for providing such benefit?	☐	☐
c. Salary advances, and other advances and receivables? (This does not include advances under an accountable plan, pledges receivable that would qualify as a charitable contribution when paid, accrued but unpaid compensation, or receivables outstanding that were created in the ordinary course of business on the same terms as offered to the general public.)	☐	☐
d. A grant, scholarship, fellowship, internship, prize, award, or other assistance (including provisions of goods, services, or use of facilities) to you or one of your relatives? (Do not include business transactions for full and fair consideration engaged in to serve the direct and immediate needs of the organization, such as payment of compensation to an employee or consultant in exchange for services of comparable value.)	☐	☐
e. A business relationship with the organization (other than as an officer, director, trustee)?	☐	☐
f. A business relationship through ownership of more than 35 percent in another entity?	☐	☐
g. A family member who has a business relationship with your organization?	☐	☐
h. Serve as an officer, director, trustee, key employee, partner, or member of another entity doing business with your organization?	☐	☐
4. Did you have a family member that received compensation or other material financial benefits from this or a related organization?	☐	☐

5. Please list all family relationships with another officer, director, trustee, or key employee who is one of the following: a spouse, ancestor, brother or sister, child (whether natural or adopted), grandchild, and spouse of brothers, sisters, children, and grandchildren.

_____

6. Please list any business relationships with the following:

   a. One person is employed by the other in a sole proprietorship, or, employed by an organization with which the other is associated as a trustee, director, officer, key employee, or greater than 35 percent owner;

   b. One person is transacting business with the other in one or more transactions of sale, lease, loan, or performance of services, involving transfers of cash or property valued in excess of $5,000 in total for the year, or, with an organization with which the other person is associated as a officer, director, trustee, key employee, or greater than 35 percent owner;

   c. The two persons are each a officer, director, trustee, or greater than 10 percent owner in the same business or investment entity.

_____

Signed_____ Date_____ Average hours devoted to organization per week ____