



GETTING TO
zero

Zero Energy Integrated Design Charrette Toolkit for Schools



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Zero Energy Integrated Design Charrette Toolkit

NBI's *Zero Energy Integrated Design Charrette Toolkit* provides you with materials to help plan and lead a successful charrette. It can be used for almost any team aiming for high levels of energy efficiency or sustainability whether actively pursuing zero energy (ZE) or not. The toolkit lays out a step-by-step process, starting with pre-charrette planning through post-charrette actions and includes information specifically for a ZE building. All materials are free to use and are easily customized to meet the needs of a particular project.

Introduction: Using Charrettes for an Integrated Design Process

A charrette is a focused work session where a project team kicks-off the integrated design process, reviews project expectations and explores design strategies that are most appropriate to achieve a project's sustainable design goals. ZE charrettes take an additional step of outlining the path to ZE by establishing absolute energy outcome targets and a plan to achieve them.

Charrettes build consensus, formalize the project vision, streamline the design process, and by supporting setting specific goals, set the team up for success. They are most effective when they happen early in Conceptual or Schematic Design. This allows key stakeholders like owners, facility managers and building occupants to share their perspective at a time when their input can still be easily—and inexpensively—incorporated into the design. The charrette also provides design team members an



opportunity to share their early design schematics and experiences on other projects.

The key to a successful charrette is to prepare in advance so the time during the charrette is used wisely and the key outcomes and objectives are achieved. Design team members should be prepared to speak to specific sustainable, high performance building strategies that might be appropriate for the project. All participants should be prepared to share their vision of a healthy, productive school environment.

ZE charrettes focus part of the agenda on energy outcomes and expectations for the project. In order to do this, some teams review existing building benchmarking data, industry average buildings, and resources to help define an achievable energy target appropriate for their building.¹ The National Renewable Energy Lab has a list of Energy Use Intensity (EUI) targets for schools in all U.S. climate zones.² Other teams use solar calculators like PV Watts to determine a solar budget allowance which define the energy budget for the building.

The History of Charrettes

During the 19th century, students of l'Ecole des Beaux Arts in Paris would ride in a cart, or charrette, sent to retrieve their final art and architecture projects. While en route to the school in the cart, students frantically worked together to complete and improve these projects. Today, in practice the word has evolved to represent a collaborative effort around a collection of ideas or a session of intense brainstorming.

Notes on how to use the Charrette Guide

- Notes in *italics* reference another piece like a sample template or an appendix to this document.
- In the sample templates, we have ***bolded and italicized*** each piece needed to replace with your project information.

¹ For more information on energy targets see Energy Goals and Targets in NBI's Getting to Zero: ZE Building Guide

² NREL Technical Feasibility Study for Zero Energy K-12 Schools. EUI targets table: page viii. <http://www.nrel.gov/docs/fy17osti/67233.pdf>

Charrette Vision, Goals and Objectives

- Provide an overview the project vision, goals, timeline, and green building approaches
- Foster teamwork and an integrated design process
- Examine constraints and identify possible synergies and solutions
- Solicit feedback from school decision makers, operators and occupants
- Clarify ZE energy targets and anticipated Energy Use Intensity (EUI) outcome
- Identify and engage stakeholders in the process of ZE
- Define next steps and a path forward

Anticipated Charrette Outcomes

- The owner, design team and all stakeholders understand and are committed to project vision and goals
- ZE EUI energy targets are set between 20-25 kBtu/ft²/year
- Funding, financing and incentive options for the project are identified and discussed
- Operators and occupants understand the importance of their ongoing role in a successful ZE building. All team members understand that post-construction measurement and verification of performance involved commitment by all involved in the project.
- Next steps are outlined for engaging additional stakeholders and the school community
- Action items for the project are defined and assigned to each team member



Discovery Elementary School | Arlington, VA

Stakeholder Identification and Engagement

When key stakeholders are involved from the outset, they are more likely to feel a sense of ownership and contribute to the success of the project. Since ZE buildings require optimal operations, buy-in from facility managers and building occupants is critical to ongoing success. A separate *ZE Stakeholder Messaging Guide* provides insights on how to communicate the benefits of ZE.

Below is a list of potential key stakeholders to invite to the charrette and a sample email invitation you can customize.

School District Stakeholders	Design/Construction Team	Optional Attendees
<ul style="list-style-type: none"> • Owner/Owner’s Representative • School Board Member(s) • Superintendent • Finance/Business Officer • Facilities Director/Staff • Sustainability Manager • Teacher(s) • Student(s) • Charrette Facilitator 	<ul style="list-style-type: none"> • Design Architect • Mechanical Engineer • Electrical Engineer • Lighting Designer • Plumbing Engineer • Civil Engineer • Contractor • Utility Representative 	<ul style="list-style-type: none"> • Commissioning Agent • Green Building Consultant • Acoustical Consultant • Bond Oversight Committee Member • Parents/PTA Representative • School District “Green Champions” • School Administrative Staff • County Office of Education • Local Community Leader • City Representative • Member of Business Community

Sample Email Invitation

- **XX Date**
- **To: XX Charrette Attendee(s)**
- **From: Charrette Facilitator or Owner/Owners Representative**
- **Subject: XX School ZE Planning Charrette**

• Dear _____,

I would like to invite you to participate in the Zero energy (ZE) planning charrette. This is the start of an integrated design process for **XX school**. The meeting date is scheduled for **XX date** at **XX time**.

The purpose of this charrette to promote a collaborative planning process that incorporates the expertise, ideas and goals of all interested parties. This charrette is happening at the beginning of the process to fully integrate the design team, school district and other key stakeholders. During the charrette we will clarify goals for the project, solicit your ideas and develop an actionable plan.

- Please respond this email to let us know if you will be able to attend the charrette. We value your participation and insights.
- Sincerely,
- **[Your Name Here]**
- **[Your Title and Contact Information]**

Host Charrette Preparation Calls

The charrette facilitator should organize preparation calls with the owner and key design team members to review the draft agenda (See *Sample Charrette Agenda* for an example), set expectations, and define roles and responsibilities. Architects, mechanical and electrical engineers can meet together in advance to explore opportunities to reduce energy loads through building orientation, passive systems like daylighting and natural ventilation as well as high efficiency systems that can serve these loads. Likewise, they can host a call with civil and plumbing engineers together is a helpful way to uncover synergies between stormwater and plumbing systems.

Be sure to address concerns regarding ZE, including energy targets, design strategies and renewable energy systems. The following is a list of questions that might be considered during these preparation calls. They can also be used as a way to encourage discussion during the charrette itself. This is followed by a list of high performance building design strategies that might be considered, as well as a list of pre-work assignments for key attendees.

- How do high performance strategies promote an enhanced educational environment?
- What are the sustainable design goals for the building? What is the energy target?
- What green building standard will be used for the project and what elements of the standard are most important to address in the design?
- How will the building design take advantage of climatic factors and passive systems (building orientation, daylighting, solar tubes/skylights, natural ventilation, operable windows, etc.)?
- How can occupancy patterns and uses be considered in the building design? Are there opportunities to locate spaces with common use types/patterns near each other to share systems? How will this impact operators and occupants?
- What high performance HVAC systems might be considered? How will they be controlled? What are the operational implications?
- What size energy renewable system will you need and where might they be located?

Charrette Planning and Preparation

NBI has template materials (shown in parenthesis below) to help with the following steps:

- Set the date, time and location** – four to six hours may be sufficient for the charrette
- Finalize the agenda**
(See the *Sample Charrette Agenda*)
- Invite participants and share the agenda**
(See the *Sample Email Invitation*)
- Prepare presentations**
(See the *Charrette Presentation Template*)
- Arrange logistics**
(See the *Charrette Checklist*)

- What are the lighting needs for the space and how will they be addressed? Is daylighting the primary source of illumination? How will it be controlled?
- What is the inventory of plug load equipment for this building and how can we optimize plug load energy use?
- Are there any biases for or against particular system types?
- What is the water budget for the building?
- How and where can stormwater be managed on site? What are the infiltration characteristics of the soils?
- Might stormwater be reused for irrigation or plumbing?
- What low water use fixtures will be used in the plumbing system?
- How will the design promote high standards in indoor air quality?
- What recycled, reused or salvaged materials might be used in construction?
- How will acoustics be addressed to promote an enhanced educational environment?
- How can nature be incorporated into the building?

Potential High Performance, Sustainable Design Strategies

Design Process & Site

Process

- Identify a ZE Champion
- Identify stakeholders, drivers, and messaging
- Develop Owners Project Requirements
- Review contract structures, include ZE
- Team Selection and Integrated Approach
- Set Energy Targets
- Design Charrette
- Early Design Phase Modeling
- Life Cycle Costing Analysis

Site Design

- Orientation
- Solar Access: Orientation, Income, etc.
- Passive Design
- Climate
- Views
- Topography
- Soils, Vegetation & Habitat
- Heat Island

Zero energy: Conservation & Efficiency

Envelope

- Infiltration Rates
- Window to Wall Ratio
- Window Types
- External and Internal Shading
- Insulation Levels and Types
- Cool and Green Roofs
- Thermal Bridging

Space Conditioning

- Passive Systems
- System Type Considerations
- Load Reduction Implications
- Efficiency Specifications
- Fault Detection and Diagnostics

Ventilation

- Separating Ventilation from Conditioning
- Dedicated Outside Air Systems
- Ventilation Rates
- Heat/Energy Recovery Systems
- Demand Control Ventilation

Controls and Metering

- Whole Building Controls
- End Use Level Controls
- Controls Integration
- Sub-metering
- Open Source vs. Proprietary Systems
- Reporting / Energy Dashboard

Interior and Site Lighting

- Daylighting
- Lighting Power Density
- Interior Lighting Technology Type
- Interior Lighting Controls
- Site Lighting Type
- Site Lighting Controls

Renewables and Energy Storage

- Solar Budget and Sizing
- On and Off Site Renewable Options
- Battery Storage
- Thermal Storage
- Grid Friendliness and Integration

Other Considerations

Water

- Stormwater Detention/Retention
- Stormwater Runoff Quality
- Low Water/Maintenance Vegetation
- Bioswales
- Erosion & Sedimentation Control
- Efficient Plumbing Fixtures
- Water
- Reuse & Grey Water

Material Conservation & Efficiency

- Recycling for Building Occupants
- Construction Waste Management
- Reduce Materials & Finishes
- Recycled Content in Materials
- Salvaged Materials
- Forest Stewardship Council (FSC) Certified Woods

Indoor Environmental Air Quality:

- Daylighting
- Natural Ventilation
- Operable Windows
- Low VOC Products (carpets, cabinet frames, paints, adhesives, etc.)
- Indoor Plants
- Sound of Water
- Acoustics

Indoor Environmental Air Quality:

- Connections to Neighborhood/Campus
- Respect for Social Equity, Diversity & Culture of Neighborhood
- Education of Visitors
- Service to Community (public spaces, conference rooms, etc.)
- Electric Vehicles
- Bike Parking & Access

Operations, Maintenance & Verification

Operation and Verification:

- Plug Loads
- Equipment Specifications and Purchasing
- Operations and Performance Drift
- Conduct Occupant Training
- Benchmark Energy Performance
- Share Energy Use With Occupants
- Commission Building Systems Post-Occupancy
- Collect One Year Of Energy Use And Production
- Verify ZE Performance (after 1+ year)

Sample Charrette Agenda

Below is a sample agenda for an Integrated Design Charrette. A more detailed, Facilitator’s Version of the Agenda is located at the end of this document.

Event Title

Day of the Week, Date, Year

Time (Hour AM – Hour PM)

Address: Street

City, State Zip

XX Room Number

Map

Time	Content	Who
8:30-9:00 am	GATHER AND SETTLE IN	All
9:00-9:10 am	Welcome & Introductions	All
9:10-9:15 am	Purpose and Introductions	Facilitator Owner
9:15-9:20 am	Agenda and Expectations	Facilitator
9:20-9:30 am	Overview of Sustainable, ZE Schools	Facilitator
9:30-9:50 am	Activity: What is Your Vision of a Sustainable, ZE School?	All
9:50-10:05 am	Project Overview and Goals	Architect
10:05-10:45 am	Site, Stormwater, and Water Strategies	Civil & Plumbing Engineers
10:45-11:00 am	BREAK	All
11:00-11:40 am	Energy Strategies to Achieve ZE	Architect, Mechanical
11:40 am-noon	Strategies to Support Superior Indoor Environmental Quality	Architect
12:00-12:20 pm	Designing & Operating to ZE	Facilitator, All
12:20-12:40 pm	Review Sustainability & Energy Targets and Identify Action Items	Facilitator, All
12:40-12:45 pm	Wrap Up and Conclusion	Facilitator

Assign Charrette Pre-Work

The facilitator should assist the project team in assigning pre-work so everyone is prepared in advance for the charrette. A complete checklist for the charrette facilitator is included at the end of this guide. Below are some ideas about specific assignments for various participants.

School District Representative:

- Prepare a welcome statement for the charrette
- Identify vision and broad goals for the project
- Clarify educational, financial and sustainability goals
- Provide Owner's Project Requirements

Architect:

- Collect photographs, aerial images and site plans for viewing by charrette participants
- Prepare short presentation (10-15 minutes) of early design concepts. Presentation should address project goals, specifically addressing educational, sustainability, daylighting, health, indoor environmental quality and acoustics

Mechanical, Electrical, Plumbing and Civil Engineers:

- Prepare short presentation (approximately 10 minutes for each discipline) of early design concepts
- Provide case studies where suggested low-energy and low-water approaches have been implemented
- Suggest ZE energy target (expressed in Energy Use Intensity in kBtu/ft²/year)

All Stakeholders:

- Watch videos that introduce high performance buildings. There are many to choose from though a few good ones include:
 - **Green, Healthy Sustainable Schools** – TEDx Talk by Jennifer Seydel, Executive Director of the Green Schools National Network. She discusses the value of sustainable schools and sustainability education including a framework for developing greener schools and school districts. <https://www.youtube.com/watch?v=aADcSV0fUoU>
 - **How Behavioral Science Can Lower Your Energy Bill** – TED Talk by Alex Laskey https://www.ted.com/talks/alex_laskey_how_behavioral_science_can_lower_your_energy_bill
- Read background articles. Again, there are many to choose from, and here are some to start:
 - Net-zero movement gaining traction in U.S. schools market, BDC Network: www.bdcnetwork.com/net-zero-movement-gaining-traction-us-schools-market
 - Zero Energy Schools – Beyond Platinum, Paul C. Hutton: <http://media.cefpi.org/efp/EFP45-3Hutton.pdf>
 - 4 reasons net-zero energy should start with schools, GreenBiz: www.greenbiz.com/article/4-reasons-net-zero-energy-should-start-schools
 - Read fact sheet and case studies available in NBI's library at <http://newbuildings.org/hubs/zero-net-energy/>

Host the Charrette

The pre-charrette preparation has set up the workshop for success. The facilitator can leverage the NBI tools, especially the Facilitator's Agenda and the discussion questions above to engage participants and direct the group toward a successful result.

During the charrette, the facilitator's role is to create space for all participants to share their thoughts and ideas. A well-conducted charrette brings together the right people to make decisions in a short period of time. The aim is to have all decision-makers and stakeholders understand the project goals, concepts and implications for long-term operations. At the end of the day, the team should have an actionable plan to achieve the project's sustainable design and ZE goals.

The charrette should be participatory. Starting the day with introductions is a way to get everyone talking. The owner can welcome everyone and introduce the goals of the project. An early activity such as "imagining a ZE school" is another way to encourage participation. This is a brainstorming activity that explores what a healthy school building looks, feels, smells and sounds like. The facilitator can take notes on flipcharts to record everyone's ideas. In brainstorming exercises, all ideas are welcome, so the facilitator should limit critical feedback at this time.

Next, design team members can present their early ideas about how to achieve the project's sustainability and ZE goals. This sets a level playing field among all key stakeholders. It also provides an opportunity for concerns to be voiced and heard.

At the end of the charrette, the facilitator can recap highlights of the day and thank everyone for their participation, time and input. The recap might include reviewing project goals, strategies, ideas and concerns that were discussed. The facilitator should clearly outline next steps including post-charrette follow up. This may also be an opportunity to recap other thoughts that may have come up, but may have been put in a "parking lot" for later consideration.

Post Charrette Follow Up

Documenting the charrette is an important step because it provides a record of key activities and outcomes. After the charrette, the Facilitator should type up the notes and share with all participants. Some participants might be interested in having copies of the presentations which can be included as an appendix in the report. NBI has a Template Charrette Report to make report writing easier.



Leyva Middle School Administration Building | San Jose, CA
Credit: KaraGeorge Studios

Sample Integrated Design Charrette Checklist

Prior to the Event:

- Preliminary meeting/prep call
- Team members identified and invited
- Venue arranged
- Verify that venue has projector, easels, wall charts
- Arrange meals/snacks
- Agenda distributed to participants
- Assign pre-work for team
- Owner prepared for brief introduction
- Design team prepared for project overview
- Prepare presentations
- Make name tags
- Prepare sign in sheet (sample one attached to this list)
- Make copies of agenda
- Pack pens, name tags, tape, etc.
- Travel Research & Reservations
- Other:

Items to Bring:

- Copies of agenda
- Copies of other documents:

- Attendee list
- Sign in sheet
- Pens, markers, voting dots, name tags & business cards
- Wall charts for brainstorming: 3M-type poster-size sticky backed easel pad & easel if needed
- Laptop with PowerPoint, power and extension cords

- Digital Projector and extension cords
- ZE/eco materials: case studies, fact sheets, articles, etc.
- Resources: Living Building Challenge, CHPS, etc.
- Directions (map, driving directions), parking pass
- Other: _____

Day of Event:

- Set-up attendee list & name tags
- Set-up projector and computer
- Arrange for coffee, snacks
- Greetings & introduction
- Distribute handouts
- Facilitate meeting
- Clarify next steps
- Say thank you!

Post Event:

- Next day: thank you email
- Following week: draft report and distribute
- Continue follow up with team as process continues

Event Title

Day of the Week, Date, Year

Time (Hour AM – Hour PM)

Address: Street
 City, State Zip
 XX Room Number

Map

Ground Rules for Facilitators:

1. **Remain as neutral as possible.** It is necessary to separate yourself from any message so that the group trusts your leadership through process.
2. **Get comfortable with mitigating conflict –** contrarians are invaluable to an effective process and acknowledge the contributions of participants.
3. **Make sure that each side of ideas are represented** so that expectations are realistic – this is part of getting that good information up front
4. **Be flexible.** If you find that you are out of sync with the group in some way, say something to the effect of, “Okay, this is your meeting. I am here to serve you and your process. What do you want to get out of this?”
5. **Ensure follow-up from goals set in EcoCharrette,** with regular tracking, and people responsible for particular tasks that are identified in the meeting
6. **Manage the agenda closely** so that the meeting achieves the closure that is needed
7. **Keep the group on task** – remind them of what they said they wanted to accomplish.
8. **Translate the ideas of those less familiar with design** into the language of the professional participants and vice versa to validate each concept brought forth and increase the likelihood that it is understood by the whole team.
9. **When asked a question, the facilitator should bounce the question back** to the entire group – thereby facilitating the group process. Remember, the group has the answers – you are not required to know everything.
10. **Ask more than you tell.** Ask facilitative questions like:
 - a. What specific outcomes or results do we want to accomplish?
 - b. Can you expand on that? How would you summarize that point?
 - c. Where’s the common ground? Can we take that as an agreement and move on?
 - d. How are we doing? What course corrections do we need to make? What should I be doing more or less of to be more effective?
 - e. What would be the best use of our time right now?

Note: Before starting the charrette, make sure to designate a note taker and someone to take photos of the event!

Time	Content	Who	Materials
8:30-9:00 am	<p>Gather, Settle In</p>	All	<ul style="list-style-type: none"> • Nametags • Sign in sheets • Food/Beverage • Ancillary materials about ZE or project
9:00-9:10 am	<p>Welcome & Introductions Ask everyone name, organization & role</p>	All	<p>Slide: Welcome</p>
9:10-9:15 am	<p>Purpose & Objectives Discuss the purpose and objectives for the day highlighting: [These should be amended to fit your charrette's goals identified in the prep call]</p> <ul style="list-style-type: none"> • Provide an overview the project goals, timeline, and green building approaches • Foster teamwork and an integrated design process • Examine constraints and identify possible synergies and solutions • Solicit feedback from school decision makers, operators and occupants • Clarify ZE energy targets and Energy Use Intensity (EUI) outcome • Engage stakeholders in the process of ZE • Define next steps, action items and a path forward 	Owner	<p>Slide: Objectives determined during prep call</p>
9:15-9:20 am	<p>Agenda & Expectations Go over agenda and address any questions Ask charrette attendees for their expectations during the day – this may be similar to objectives or this may be different. This is a good exercise to engage people in the coming discussions. Some expectations from attendees could include:</p> <ul style="list-style-type: none"> • The owner, design team and all stakeholders understand and are committed to project goals • ZE is clearly defined, everyone understands the importance of the efficiency loading order • ZE EUI energy targets are set between 20-25 kBtu/square foot per year • Funding, financing and incentive options for the project are discussed Operators and occupants understand the importance of their ongoing role in a successful ZE building. All team members understand that post construction verification and measurement of performance involved commitment by all involved in the project • Action items are outlined for engaging additional stakeholders and the school community • Action items for the project are defined and assigned to each team member 	Facilitator	<p>Slide: Agenda</p> <ul style="list-style-type: none"> • Flipchart • Markers

Time	Content	Who	Materials
<p>9:20-9:30 am</p>	<p>Overview of Sustainable, ZE Schools Why ZE Schools: Outline why going ZE is important to do with schools and why we are starting with that goal in mind from the beginning.</p>	<p>Facilitator</p>	<p>Slide: Why ZE Schools from Charrette Presentation Template</p>
<p>9:30-9:50 am</p>	<p>Activity: What is Your Vision of a Sustainable, ZE School? Consider the questions below and note attendee's ideas from the brainstorm on flipcharts</p> <ul style="list-style-type: none"> • What does a healthy school feel like? • What do you notice as you look around? • What do you notice outside? • What do you smell? • What do you hear? <p>Prioritization of Strategies: If you alone had to choose only 5 strategies from the list we've generated, which would they be? Use your stickers to vote - no explanation needed. If there is a pattern, point out the top 2-3 strategies and ask people why they prioritized them.</p> <p>Draw connections between strategies, and help them see the meaning in the priorities that the group found.</p> <p>Try to elicit conversation about what these priorities could do to influence design decisions going forward.</p>	<p>All</p>	<ul style="list-style-type: none"> • Flipchart • Markers • Sticker "dots" • List of Potential High Performance Sustainable Design Strategies
<p>9:50-10:05 am</p>	<p>XX School Project Overview and Goals Architects present the overview of the project including any initial schematic designs, design timelines, technology packages being considered, etc.</p>	<p>Architect</p>	<p>Slides: Project overview</p>
<p>10:05-10:45 am</p>	<p>Site, Stormwater and Water Strategies Civil Engineer/Plumbing Engineers present Site, Stormwater and Water strategies possible for the project including any initial schematic designs, design timelines, renderings, etc</p>	<p>Civil & Plumbing Engineers</p>	<p>Slides: Presentation from Civil & Plumbing Engineers</p> <ul style="list-style-type: none"> • List of Potential High Performance Sustainable Design Strategies
<p>10:45-11:00 am</p>	<p>Break</p>		

Time	Content	Who	Materials
<p>11:00-11:40 am</p>	<p>Energy Strategies to Achieve ZE Engineers present the local climate analysis and passive, mechanical and electrical strategies possible for the project including any initial schematic designs, design timelines, renderings, etc.</p>	<p>Mechanical & Electrical Engineers</p>	<p>Slides: Presentation from Mechanical & Electrical engineers List of Potential High Performance Sustainable Design Strategies</p>
<p>11:40 am-noon</p>	<p>Strategies to Support Superior Indoor Environmental Quality Architects present Indoor Environmental Quality strategies possible for the project including any initial schematic designs, design timelines, renderings, etc.</p>	<p>Architect</p>	<p>Slides: Presentation from Architect • List of Potential High Performance Sustainable Design Strategies</p>
<p>12:00-12:20 pm</p>	<p>Designing & Operating to ZE Discussion Facilitate a discussion around “The Arch of Continuity” and the hand off to maintenance & operations.</p> <ul style="list-style-type: none"> • Building are operated to ZE – not just designed to ZE • Defining the ongoing role of occupants and operators • Commissioning, Fine Tuning & On-going Evaluation • Verifying Energy Use & Recognition of Success 	<p>All</p>	<p>Slides: Designing and operating to ZE • NBI’s Getting to Zero: ZE Project Guide</p>
<p>12:20-12:40 pm</p>	<p>Review Sustainability & Energy Targets and Identify Next Steps Address targets identified in initial discussion and see if any changes need to be made Identify next steps & action items for team members. Highlight what actions, by whom and by when. Review timeline for integrated design process and team assignments</p>	<p>All</p>	<p>Flip chart: document targets after they are readdressed, note next steps, action items and timeline • Markers</p>
<p>12:40-12:45 pm</p>	<p>Wrap up and Conclusion Address any remaining housekeeping items or team assignments Set plan for next meeting or check in points</p>	<p>All</p>	<ul style="list-style-type: none"> • Closing slides • Markers

GETTING TO **zero**

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New Buildings Institute (NBI) is a nonprofit organization driving better energy performance in commercial buildings. We work collaboratively with industry market players—governments, utilities, energy efficiency advocates and building professionals—to promote advanced design practices, innovative technologies, public policies and programs that improve energy efficiency. We also develop and offer guidance and tools to support the design and construction of energy efficient buildings.

Throughout its 20-year history, NBI has become a trusted and independent resource helping to drive buildings that are better for people and the environment. Our theory of change includes setting a vision and defining a path forward. We then set out to create the research that serves as the basis for tool and policy development necessary to create market change.