

## GLT INSTITUTE WORKSHOP - TRAINING ITINERARY AND OUTLINE

Welcome to the GLT Institute Installer Certification Training. The workshop will teach you about the Green Living Roof systems, Green Living Walls, Urban Agriculture, waterproofing, irrigation and maintenance. The workshop is designed as the pre-courser to more advanced training. Advanced training includes authentic installations. Upon completion of this certification you will be able to understand or demonstrate:

- History of green roofs and walls
- Identify various roof membranes and waterproofing, why they fail
- Recommend a roof membrane
- Applying the GLTi - Hyload waterproofing as a single source warranty
- Identify the three common types of green roof systems
- Introduction to the Green Living Roof Panels
- Compare the Green Living Roof systems to others, pros and cons and failures
- Applied the Green Living Roof panels to roofs less than 20°
- Introduction to the Green Living Wall
  - Bracket system
  - Freestanding systems
  - Agriculture and produce, food factories
- Common installation techniques of the Green Living Wall
- Compare the Green Living Wall to others, pros and cons and failures
- Introduction to plant material & Growing Media through local resources
  - Why using local materials is not an option
  - Pre - grown green roofs / walls
  - Other green roof plants (intensive and hybrid)
  - Green wall plants and their relationship to green wall depth
  - Edible crops and the Green Living Wall
- Simple irrigation options
  - Green Walls
  - Green Roofs
- Green roof and wall maintenance
  - Plant choices vs. depth
- Preliminary budgets, function and client expectations
- Budget projections for profitability
- Working with occupational safety organizations
- Tour manufacturing and visit multiple green wall and green roof projects

## Day 1 Green Roofs

8:30 – 9:00 am

- Registration & Sign In
- Un-Paid balances due
- All non-disclosures due

9:00 – 9:15 am

- Introductions
- Note where rest rooms are
- Note the days agenda
- Opening remarks

9:15 – 9:45 am

- History GLTInstitute
- History / Benefits of Green Roofs
  1. Storm water runoff
  2. Increased life expectancy of waterproofing
  3. Prevents heat buildup / Urban Heat Island
  4. Places for flora and fauna
  5. Reduces Carbon emissions and provide Oxygen
  6. Urban Agriculture
  7. Integrated Design, Solar, Rain Gardens, Rain Barrels
- Green Roof Codes and Standards
  1. US – Current existing standards for ballast roof tops
  2. Forschungsgesellschaft Landschaftentwicklung Landschaftsbau. e.V. (FLL) Guidelines for Planning, Installation, and Maintenance of Green Roofs. Deciphering the standards explaining volume vs weight.
  3. Federal Guidelines

9:45 – 10:15 am

- The base of all successful green roofs
  1. Substructure
  2. Waterproofing and membrane
- Identifying various roof membranes and waterproofing
  1. EPDM
  2. Polyvinyl chloride (PVC)

3. TPO
  4. Coal tar pitch
  5. Protected Membrane Roof
  6. Others & Terms; Liquid Applied, Modified Bitumen, Hot Mop Liquid applied
  7. Manufactures
- Recommending a high quality waterproofing
  - Waterproof testing, Flood Test, EFVM (Electric Field Vector Mapping)
  - Single source provider, waterproofing and vegetation
  - NRCA (National Roofing Contractors) & ASTM (American Standard Testing Methods)
  - Wind Uplift
  - Fire

10:15 – 10:30 am

- Break

10:30 – 10:45 am

- Identifying types of green roofs
  1. Extensive
  2. Intensive
  3. Hybrid

10:45 – 11:30 am

- Introduction to the Green Living Roof Systems
  1. Green Living Roof Panels – one system for all types of green roofs
- Engineered growing medias for specific green roofs
  1. Compost (GLTi bioSoil)
  2. Aggregate
- Local Plant material for:
  1. Extensive
  2. Intensive
  3. Hybrid
  4. Urban Agriculture
- Irrigation options for green roofs
  1. Drip vs. Spray vs. rotors
  2. New technology and application
- Apples to Apples comparison to other green roof systems
  1. Plastic
  2. Trays
  3. Built up systems
  4. Design flexibility
  5. Labor savings
  6. Function

11:30 – 12:15 pm

- Lunch

12:15 – 3:00 pm

- Green Roof Tour

3:00 – 3:30

- Classroom review of GLTi Green Living Roof Installation
- Installers handbook (220 pgs)
- Installation / Instructional Videos

3:30 - 4:30 pm Green Roof Mock Up Demonstration

#### Materials

- Safety materials / Demonstration
  1. Hard Hat, Harness, Gloves, Safety Glasses
  2. Two Way Radios
- Sample Protection Fabric aka Slip Sheet
- Green Living Roof Panels
- Edging, seam tape and Cover Tape
- Pre-Cut Edging and edging brackets to demonstrate Drains
- Utility knife
- Drill, Phillips drive bit, self tapping screws
- Stone ballast, Paver Ballast
- Lap Top for blue prints
- Safety, equipment, pre-preparation
- Materials Lifting
- Hands on mock up
  1. Jobsite inspection check list
  2. Prepare the jobsite and protection
    - a. Staging
    - b. Waterproofing preparation
    - c. Waterproofing protection
    - d. Installing protection fabric
  3. Installing edge detail
    - a. Tips and Tricks of creating drain boxes
  4. Irrigation
    - a. Flexibility of below grade irrigation and effective watering

5. Planning for root free zones and ballast edges
6. Installing Green Living Roof Panels in preparation for mats, blankets or cuttings
  - a. Screed to specified depth

4:30 – 4:45 pm

- Review and questions and answers

## Day 2 Green Wall

8:30 – 9:00 am

- Registration & Sign In
- Un-Paid balances due
- All non-disclosures due
- Continental Breakfast, Coffee, Juice and Snacks available throughout the day

9:00 – 10:00 am

- History of Green Walls
  1. Hanging Gardens Babylon
  2. Greece, Grapes and Wine
  3. Ivy League and Football
  4. 90's
  5. 2000 – Current
- Definitions /Pedagogy
  1. Green Wall
  2. Living Wall
  3. Green Façade
- Introduction to the Green Living Wall
  1. Design
    - Open cell
    - g2 Closed cell
  2. Function
  3. Sizes, materials
  4. Irrigation / Fertilizer
  5. Uses
  6. Brackets / Wall attached
  7. Freestanding

## 8. Agriculture, Food Factories

- Comparing GLT to Others
  1. ELT (Elevated Landscape Technologies) – Bright Green
  2. G-Sky
  3. VGM / Tournesol
  4. Hydroponic Felt w/ PVC base
  5. Felt Pockets(Wooly Pockets, Plants on Walls)

10:00 – 10:15 am

Break

10:15 – 10:45 am

- Green Wall Media
  1. What is it?
  2. Why doesn't it fall out? Open cell vs. g2
  3. Beneficial microbes
    - a. Define Microbs
    - b. Beneficial Microbes for Agriculture
  4. GLTi bioSoil....it's not fertilizer
    - a. Microb enriched
    - b. Organic
    - c. Compost
    - d. Free Draining

10:45 – 11:15 am

- Common Details - Green Living Walls
- Open Cell
- g2

11:15 – 12:00 pm

Lunch

12:00 – 2:30 pm

Green Wall Tour



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2:30 – 3:30 pm – Review, installation videos (PNC installation and more)

3:30 – 4:30 Sales – Self Driven – GLTi supported

1. Lunch and Learns
  2. Networking
  3. Shows and demonstrations
- From Inquiry to Sale
    1. Initial phone call, email
    2. Gather as much information as possible about the client, the job, location
    3. Objective is to get to the person who signs the contracts
  - Creating a budget projection work sheet
    1. Excel spreadsheet sample review

4:30 Review and Questions and Answers



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## Day 3 Hands On Green Wall .....Planting and Installing the Green Living Wall

8:30 - 9:00 am

- Check in

9:00 - 11:30 am Materials review and set up

Planting the green walls

- Open faced green living wall
- g2

11:30 – 12:15 Lunch

12:15 –2:00 Wall mounted green wall installation

2:00 – 2:30 Review, Q&A

Jobsite inspection check list

1. Construction Schedule
- Materials: (Pending location and size of the wall)
- Installation Process
  1. Staging
  2. Site protection
    - a. Construction Paper or Tarp
  3. Catch basin mounting
    - a. Level, on spacers for air flow
  4. Row 1 (bottom) in relation to catch basin
    - a. Bottom of first row 1.5" inside the catch
    - b. Install level for even water flow
  5. Row 2 spacing between the rows (1/2" max)
    - a. Use spacer bar that pre-determines spacing
    - b. Allow minimum ¼" and maximum ½" between the rows
  6. Row 3
  7. Drip Pan
    - a. Allow for the same spacing as per 5b



- Advanced Irrigation Option
  1. Installing Drip line
  2. How to break up the various zones
  3. Why is there no drip line on the last row?

2:30 – 3:00 pm - Clean up, classroom review, Q&A

3:30 – until... pm

- Applying the MEWU (Mobile Edible Wall Units) Commercial and Educational Use
  1. MEWU
  2. A Frame
  3. Mini A Frame
  
- Maintaining Green Roofs and Walls
  1. Location
  2. Perimeter
  3. Irrigation
  4. Clean
  5. Weed
  6. Replace
  7. Fertilizer and Best Management Practices (BMP)
  
- Working these skills into your existing business
  1. Architects and Designers
  2. Landscape Contractors
  3. Growers
  4. Farmers
  5. Sales / Sub Contractors
  6. Marketing / Advertising “Marketing Genius”
  
- Working with:
  1. Prevailing Wage
  2. Win Win labor relationships
    - a. Roofers install the non – vegetative components
    - b. Landscape contractors install vegetative components
    - c. Landscape contractors install the irrigation
    - d. Landscape contractors retain the long term residual income through maintenance
  3. Green Walls
    - a. May have to be flexible with labor unions
    - b. GLTi systems made of metal



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- c. Brackets made of metal
  - d. However most will not want to install such because of the plants
  - e. Unlike the Green Roof market, very little push back from metal workers
- Moving Forward
  - 1. Using the information presented, copyrights and pictures
- Supporting help
  - 1. GLTi design and engineering
    - a. Materials lists
    - b. Estimating & Profitability
    - c. Facilitate growing and planting design
    - d. Custom Engineering
    - e. Stamped Architectural Shop Drawings
    - f. Site supervision
    - g. Continuing Education & Authentic Learning
    - h. Independent Contractor
- Closing questions / Remarks
- Dismissed



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