

Preliminary Outline and Schedule for TEC Train the Trainer – 2018

(As of April 12, 2018)

Monday

Welcome reception at hotel

Tuesday – Hotel pick-up 8:15

Welcome and Intro of participants, to the event, and the teachings (Frank)	9:00 to 12:00
With Break	10:30 to 10:45
Lunch	12:00 to 1:00
Blower Door (Paul)	1:00 to 2:30

- Review blower door accessories
- Quick check of gauges
- Demonstration and then hands on:
 - Perform a gauge quick check
 - Perform a blower door pressurization test using DG-1000 Connect
 - Perform a blower door test and capture the data using TEC Gauge
 - Perform a blower door test using TEC Auto Test App
- Training outline
 - Demos using TEC Trainer
 - Hands on using 5 TEC Trainers (16 people attending)
 - 3 attendees at each TEC Trainer
 - Rotate attendees through one task
 - Rotate which attendee goes first for each task (123, 231, 312, 123)

Answer online questions for this section, Blower Door quiz: <https://testmoz.com/878303>

- Break 2:30 to 2:45

Duct Blaster (Paul) 2:45 to 4:00

- Demonstration and then hands on:
 - Perform a total duct leakage pressurization test using a DG-1000
 - Perform a total duct leakage depressurization test using Auto Test App
 - Perform a duct leakage to outside depressurization test

Duct Blaster quiz: <https://testmoz.com/878351>

- Tour of TEC (Gary / Frank) 4:00 to 5:00

Dinner and return to hotel

Wednesday - Hotel pick-up 8:15

Software and apps (Rob and Paul)

9:00 to 10:30

- Demonstrations:
 - Apps - TEC Auto Test, TEC Gauge, TEC RESNET
 - Software - iTEC-700 for PC, TECLOG3, TECTITE, TECTITE Express, TECBlast, ZPDCU

Software and Apps quiz: <https://testmoz.com/878415>

Break

10:30 to 10:45

Training aids (Paul)

10:45 to 12:00

- Demonstrations:
 - TEC Trainer
 - Blower Door Simulator
 - ZPD Trainer
 - SeeStack
 - DG-700 Connect
 - DG-1000 Connect

Training Aids quiz: <https://testmoz.com/878491>

Lunch

12:00 to 1:00

Measuring Air Flow (Paul)

1:00 to 2:30

- Demonstrations:
 - Measure air handler flow using a True Flow Air Handler Flow Meter
 - Measure air handler flow using a Duct Blaster fan and the pressure matching method
 - Use the Duct Blaster fan as a powered flow hood for measuring supply (cardboard box attached to the flex)
 - Use a Flow Blaster for measuring supply air flow
 - Measure bath fan using the Exhaust Fan Flow Meter and trueflow

Measuring Air Flow quiz: <https://testmoz.com/878373>

Break

2:30 to 2:45

Measuring kitchen fan flow (Paul)

2:45 to 4:00

- Demonstrations:
 - Use a cardboard box and the orifice flow equation
 - Use a Duct Blaster fan pressure matching
 - Use a blower door pressure matching

Measuring Kitchen Fan Air flow quiz: <https://testmoz.com/878391>

Flow Capture Hood Research (Gary)

4:00 to 5:00

Dinner and return to hotel

Thursday – Conference room of Hotel

Wrap up, questions and feedback (Frank)

9:00 to 12:00

Lunch at noon

Logistics

Blower Door

- Set up:
 - Have blower doors set up with all windows open and tubing not connected to the gauge
 - Run tubing to outdoors for baseline
 - Connect green tubing to each side of trainer and red to the fan
 - Set computer, iPad and DG-1000 to Join TECExtreme5
- Demos:
 - DG-1000 Connect
 - Tubing connections
 - Explain computer, 1000, iPad connections to TECExtreme5
 - Launch DG-1000 Connect and configure for blower door test
 - Run test from computer
 - TEC Gauge
 - Launch Reflector2
 - Launch Air Play Mirroring
 - Right click and choose via full screen
 - Launch TEC Gauge and Connect
 - Gauge says (remote control) and goes to PR/PR MODE
 - Show settings and Information
 - Configure settings and run test
 - Capture data and show reports
 - TEC Auto Test
 - Launch TEC Auto test
 - Copy **Example Demo** and name it **trainer demo**
 - Open **final envelope inspection** and run test
 - Verify CFM50 of TEC Trainer
 - Calculate volume so results are 3.0 ACH50

Duct Blaster

- Have Duct Blasters set up, but not connected to trainer and flex duct system not in place
- Demonstration and then hands on:
 - Perform a total duct leakage pressurization test using a DG-1000 Connect
 - Perform a total duct leakage depressurization test using Auto Test App
 - Perform a duct leakage to outside depressurization test using two DG-1000 Connects

Software and apps – (10 minutes each)

- Apps
 - TEC Auto Test w intro 20 min 20
 - Automated blower door and duct leakage test with timestamp and geotag
 - Easy to sign and send
 - Show report: **auto test app report**
 - TEC RESNET 10 minutes 30
 - Manual data entry
 - Launch app and open **New demo**
 - Click **Test Readings** right arrow
 - Click **Geotag**
 - Reports = HTML + photo
 - **Sample TEC RESNET Report**
 - Email Test File = .bld file
 - TEC Gauge 5 min 35
 - Info directly from the gauge, includes time stamp
 - Show reports: **TEC Gauge xml** and **TEC Gauge txt**
- Software
 - TECBlast 5 min 40
 - Manual data entry
 - Open **sample**
 - View customer report
 - Print to pdf
 - TECTITE 15 min 55
 - Automated or manual
 - CGSB and RESNET
 - Option for zonal testing (currently cable only)
 - Open **tectite with zonal**
 - View detailed report
 - View zonal report
 - Open **tectite with hatch open**
 - View zonal report
 - ZPDCU 5 min 60
 - View **zpd w tectite**
 - View **26th street**
 - TECTITE Express 10 min 70
 - CGSB, E779, EN13829, ISO 9972
 - Pressurization and depressurization
 - Open **tectite express sample**

- | | | |
|-------------------------------------------------------|--------|----|
| ○ TECLOG3 | 10 min | 80 |
| ▪ Multi fan graphing software | | |
| ▪ Open <i>sample USACE File</i> | | |
| ▪ Open <i>sample USACE Report</i> | | |
| ○ iTEC-700 for PC | 10 min | 90 |
| ▪ demonstrate opening multiple DG-700s on the desktop | | |
| ▪ | | |
| ▪ set WiFi Link into data logging mode | | |
| ▪ open <i>sample data logging</i> graph in TECLOG3 | | |

Training aids

- | | | |
|-------------------------|------------|----|
| ○ TEC Trainer | 5 minutes | 5 |
| ○ Blower Door Simulator | 20 min | 25 |
| ○ ZPD Trainer Software | 20 min | 45 |
| ○ SeeStack | 20 min | 65 |
| ○ DG-700 Connect | 15 minutes | 80 |
| ○ DG-1000 Connect | 10 minutes | 90 |

TEC Trainer

BD simulator

- Explain screen
- Setup
- Tubing connections (differential pressure gauge)
 - Channel A = house WRT outside
 - Channel B = fan pressure WRT the space it is located
 - Typical – gauge inside
 - Depressurization
 - Pressurization – mold in walls, asbestos in attic, QC, standard requirement
 - Townhouse or apartment – gauge outside
 - Depressurization
 - Pressurization
- Blower door test
 - Resnet worksheet

ZPD Trainer

- Explain setup
- Zones and adjustable holes
 - As pressures change colors change
 - Adding roof venting changes BD flow
- Open a door example

- Add a hole example
- Pressure and leakage diagrams
- Ratio chart

SeeStack

- Commands:
 - Neutral level – V,
 - Height – 123 Ventilation rate changes
- Intro
 - Shows stack pressures
 - Neutral level
 - Ventilation rates
- Stack pressure is a function of:
 - Temperature ΔT
 - Height from the neutral level
- Total ventilation is a function of
 - Stack pressure
 - Wind pressure
 - Mechanical pressure
 - Leakiness of the building
 - Location of the neutral level
- Things that can be adjusted
 - Height of the building
 - Tightness of the building
 - Fan induced pressures
 - Outside temperature
- Things that change as a result
 - Stack pressures at top and bottom
 - Ventilation rates
 - Neutral level

Temp change

- Ventilation rate
- Stack pressures

Building height

- Stack pressures
- Ventilation rates

Neutral level

- Stack pressures
- Ventilation rate

Fan on

- Ventilation rate
- Neutral level

- Point out half of the air going out of the home is new air, the rest is coming from air already leaking in.
- SIP example

Measuring stack pressures

Show Langdon slide

Prepare charts for measuring:

- AH
- Supply flow
- Exhaust flow
- Kitchen fan flow