General Contractor's Guide for Constructing & Sealing Access Floor Air Plenums

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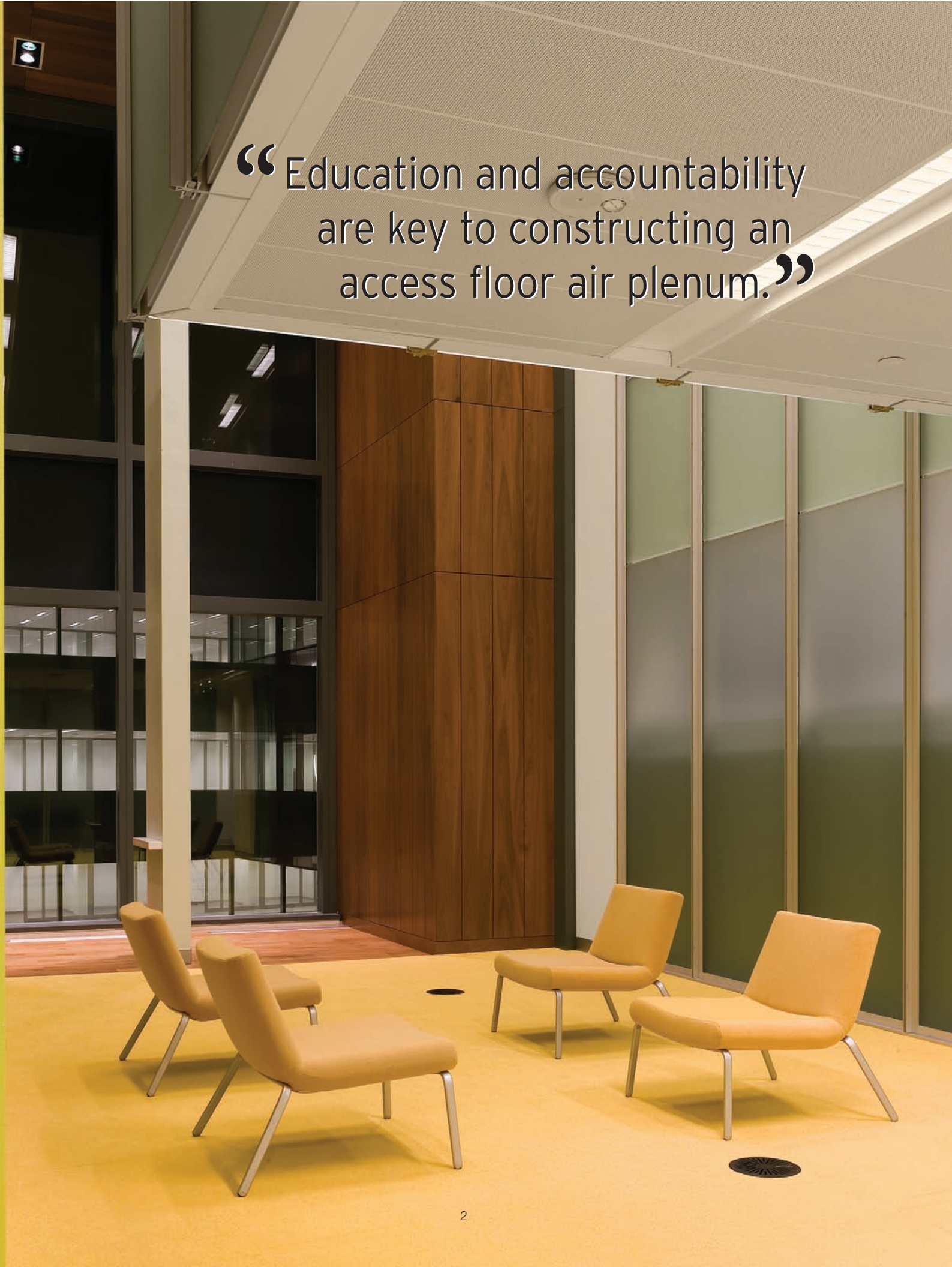
“Education and accountability are key to constructing an access floor air plenum.”

GC's Guide for Constructing & Sealing Access Floor Air Plenums

Plenum Integrity is one of the most important aspects of designing, constructing and maintaining an underfloor air delivery (UFAD) system. It is vital that the entire design and construction team does their part to ensure the underfloor plenum is sealed properly. As the general contractor you have the responsibility of ensuring all the subcontractors are informed of, and perform to the sealing requirements as described in the specifications and details provided by the architect. To ensure the UFAD system operates as intended after occupancy every contractor working in the plenum space needs to be aware of their responsibilities before they submit their bids and should be equipped with the information they need to successfully complete their work while maintaining plenum integrity.

Tate Access Floors is providing the following plenum construction and sealing guidelines for consideration. The recommendations contained within this guideline are based on lessons learned through working on a wide range of UFAD projects. To that end, Tate believes a holistic approach to design and construction should be used and recommends regular consultation be held with key individuals on the construction team throughout the entire design process.

There are five primary recommendations. An overview of each recommendations is provided below followed by a more detailed explanation.

Design:	Review the project specifications and construction details with the architect prior to issuance of the construction documents
Pre-Bid Meeting:	Coordinate a meeting to inform all sub-contractors of the specified plenum sealing requirements and mock-up requirements as developed by the architect.
Pre-Construction:	Coordinate a pre-construction meeting to reaffirm specified plenum sealing requirements for each division.
Mock-up:	Coordinate the construction and testing of a mock-up that includes all actual building conditions relative to the UFAD system.
Quality Inspections:	Ensure that all subcontractors remediate any issues identified by the commissioning agent during inspections prior to the access floor installation whenever possible and/or as a result of the access floor air plenum testing.

General Contractor Guidelines

As the GC you should ensure the following action items are fulfilled before, during and after the construction phase of the project to ensure the proper construction on the UFAD plenum. This guide is intended to be used along with its companion documents "*Architect's Guide for Detailing & Specifying Access Floor Air Plenums*," which facilitates the creation of a properly functioning plenum by providing plenum sealing specifications and details, and the *"Commissioning Agent's Guide for Inspecting and Testing Access Floor Air Plenums,"* which serves as a checklist of the plenum locations that need to be inspected and outlines proper air leakage testing procedures.

1. Pre-Bid Meetings: During this meeting you should make sure the CSI specifications and plenum details containing all applicable plenum construction and sealing requirements are used to solicit bids. Each division should also be informed of the requirement to construct a pre-construction mock-up for air leakage testing. The specification sections which should be involved are: Access Flooring, Sheet Rock, HVAC, Electrical, Communications, Plumbing and Finishes/Tile Carpeting. Other specification sections may have been added by the architect for any contractor who will build part of the plenum or penetrate into it.

2. Pre-Construction Meetings: The pre-construction meeting is to reaffirm the importance of plenum sealing integrity and point out areas of contractor responsibility. It's a good idea to make sure all successful bidders especially those who didn't attend the pre-bid meeting have copies of the architect's plenum sealing drawings and specifications before plenum construction begins. At this time you should also reiterate to the contractors and indicate that the sealing portion of their work will be inspected and that they will be required to correct deficiencies.

3. Plenum Mockup and Testing: You will need to coordinate and schedule all successful bidders to take part in building an on-site access floor plenum mockup in accordance with the design specifications and construction details for inspection and air leakage testing. The mockup should be representative of all scenarios present in the final structure including, but not limited to: at least one sheetrock wall with sealed joints below the access floor, sealed access floor perimeters, a sealed plenum divider, floor covering (and cove base if required), air diffusers, power/voice distribution boxes, sealed penetrations for ductwork, conduit, cabling and a pipe passing through the wall(s).

4. Auditor: You should coordinate with the independent quality auditor or commissioning agent to inspect the plenum construction and sealing work to verify that it complies with the specifications and drawing details. Audits should be done frequently and throughout construction with at least one audit-taking place immediately before the access floor is installed. The auditor or commissioning agent should provide you with a detailed report identifying any construction conditions that do not comply with the specifications and construction details. (see example report below)

5. Testing: The commissioning agent mentioned in step 4 should be required to perform air leakage tests on both the completed mock-up and the finished plenum after construction is completed. It's best to work in conjunction with the commissioning agent to test the mock-up and plenum for air leakage. Total air leakage from the plenum should meet the project requirements specified by the architect based on the total designed air volume to be delivered.

6. Remediation: You should ensure that all sub-contractors remediate any issues identified by the commissioning agent during the construction process inspections prior to the access floor installation, and any remediation identified after access floor installation and subsequent air leakage testing.

Plenum Inspections & Reporting Form

The following checklist of structures, plenum seams, penetrations and openings should be submitted by the commissioning agent after every inspection. Some sealing requirements may not be applicable to all projects. All inspections should be coordinated and conducted along with the general contractor.

Base Building Core and Shell

Location of Seal	OK	Remediation Required
Perimeter seam along slab and exterior wall.	❑	
Enclosed column seam at slab line.	❑	
Drywall partition condition at slab line.	❑	
Base of stair landing.	❑	
Top of stair landing.	❑	
Elevator shaft below access floor line.	❑	
Bathroom on raised core.	❑	
Expansion joint in concrete deck.	❑	

HVAC System

Location of Seal	OK	Remediation Required
Opening in slab for vertical ducts.	❑	
Opening in plenum wall for ducts.	❑	

Plumbing System

Location of Seal	OK	Remediation Required
Pipe penetrations through concrete deck.	❑	
Pipe penetrations through plenum walls.	❑	

Electrical System

Location of Seal	OK	Remediation Required
Conduit through plenum walls.	❑	
Open ends of conduits in the plenum space.	❑	

Voice/Data System (Communications)

Location of Seal	OK	Remediation Required
Cable penetrations through the plenum walls with cable sleeves.	❑	
Caps on empty conduits or cable sleeves.	❑	

Access Floor

Location of Seal	OK	Remediation Required
ZONE PARTITIONING		
Plenum dividers.	❑	
Air highways.	❑	
Penetrations through plenum dividers.	❑	
ABUTMENTS		
Perimeter seam without wall base.	❑	
Through wall without wall base.	❑	
Perimeter seam with wall base.	❑	
Through wall with wall base.	❑	
Perimeter seam at non-smooth walls and columns.	❑	
Access floor seal at fascia/exposed edge	❑	
Perimeter seam at elevator shaft.	❑	
Perimeter seam at top of stair landing.	❑	
Perimeter seam at bae of stair landing	❑	
Perimeter seam at fire barrier below door threshold.	❑	
Perimeter seam at curb where floor covering is continuous.	❑	
Perimeter seam at curb where floor covering is not continuous.	❑	
PENETRATIONS		
Cable cutouts and grommets.	❑	
Power/voice/data distribution boxes in access floor panels.	❑	
Pipe penetrations through the access floor.	❑	
Inside walls through the access floor.	❑	

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