



## Examples from the field what not to do

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# **Don't Assume Passing the USACE spec means all air barrier criteria are met**

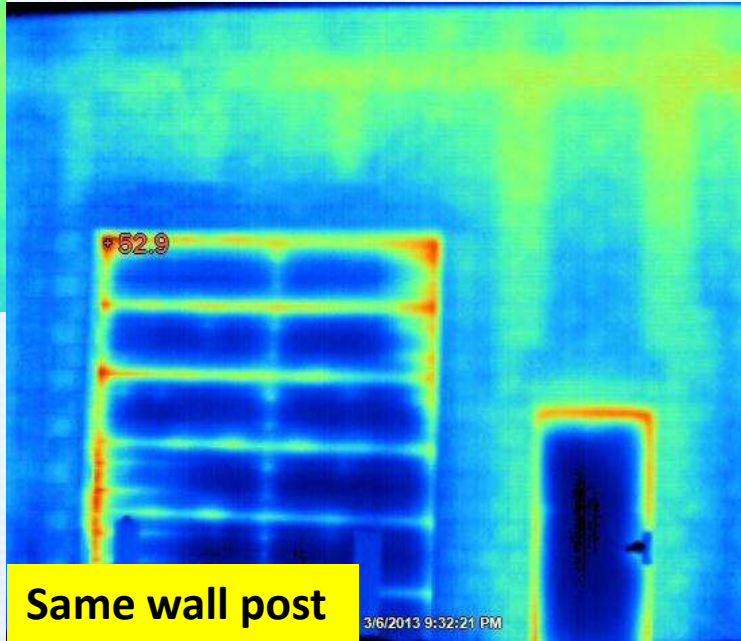
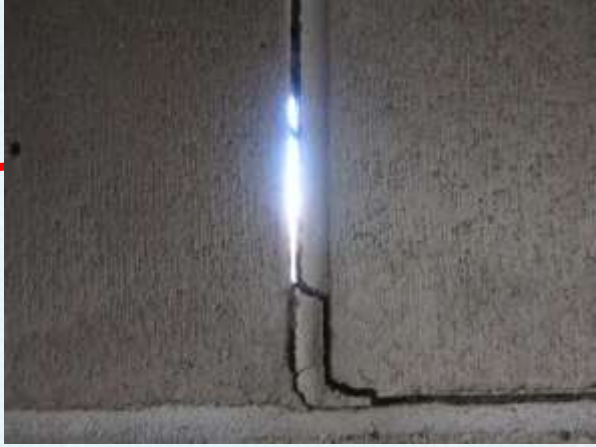
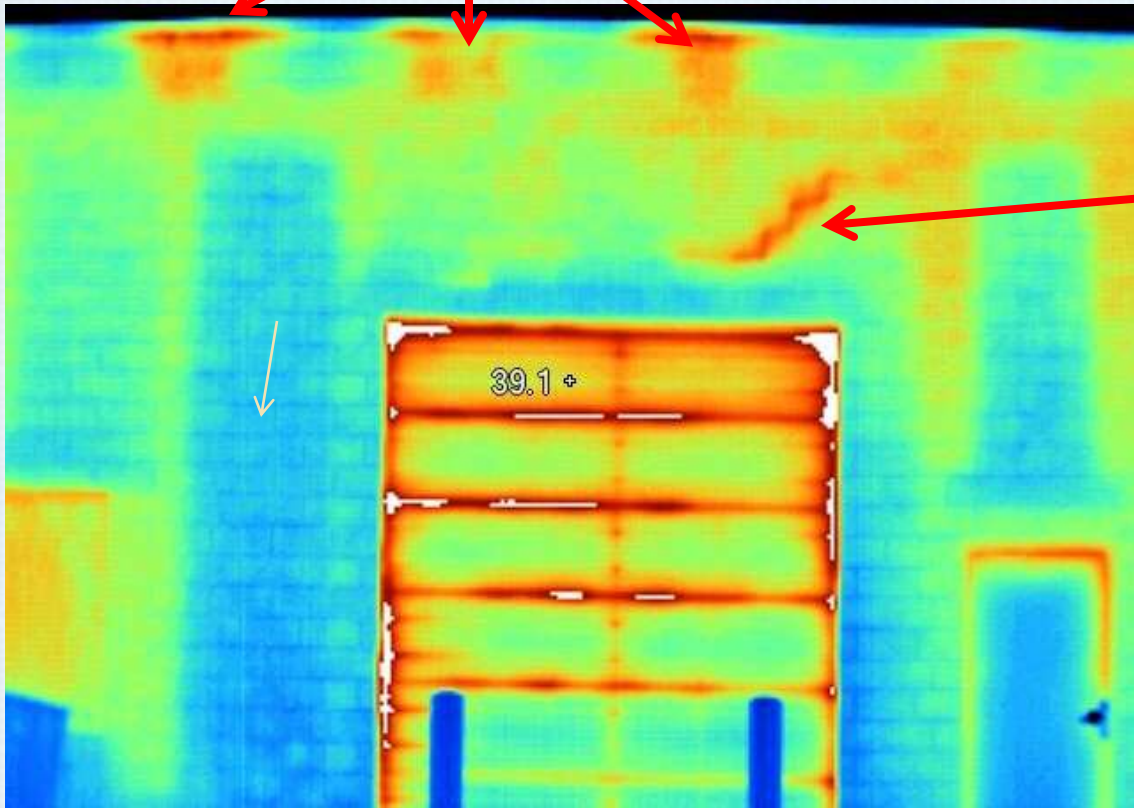
- ❖ **Example from this building**
- ❖ **Our job: test if any cost effective air sealing can be performed on this and larger buildings**

**First perform an air leakage test**

## Test results, PCL building as found: 0.14 cfm 75/sq. ft. (6 sides)

- ❖ 44% tighter than the Army Corps Standard
- ❖ Average of pressure and depressurization
- ❖ **9177** cfm 75 before sealing
- ❖ **8470** cfm 75 after limited sealing
- ❖ Normalized leakage now 0.13 cfm 75/sq ft

# Where to look: IR view of rear CMU wall pre



Same wall post

3/6/2013 9:32:21 PM



# Look inside: 10 beam pockets in leased space

Open to inside



Open above to parapet cap



Smoke shows airflow



# Closed cell foam fill, don't create fire hazard



$\frac{3}{4}$  cu ft foam block  
max temp rise check  
for building official  
and owner before  
injection.

Don't start a fire

See ICC ES 3228 approvals.  
maintain exhaust on work  
space adj. to occupied office  
Sample MDI < 5ppb  
Manage exposure

**#1 don't assume one required criteria substitutes for others**

**the whole building air leakage test does not confirm materials, details, strength, durability or location of air barrier with respect to condensation protection**

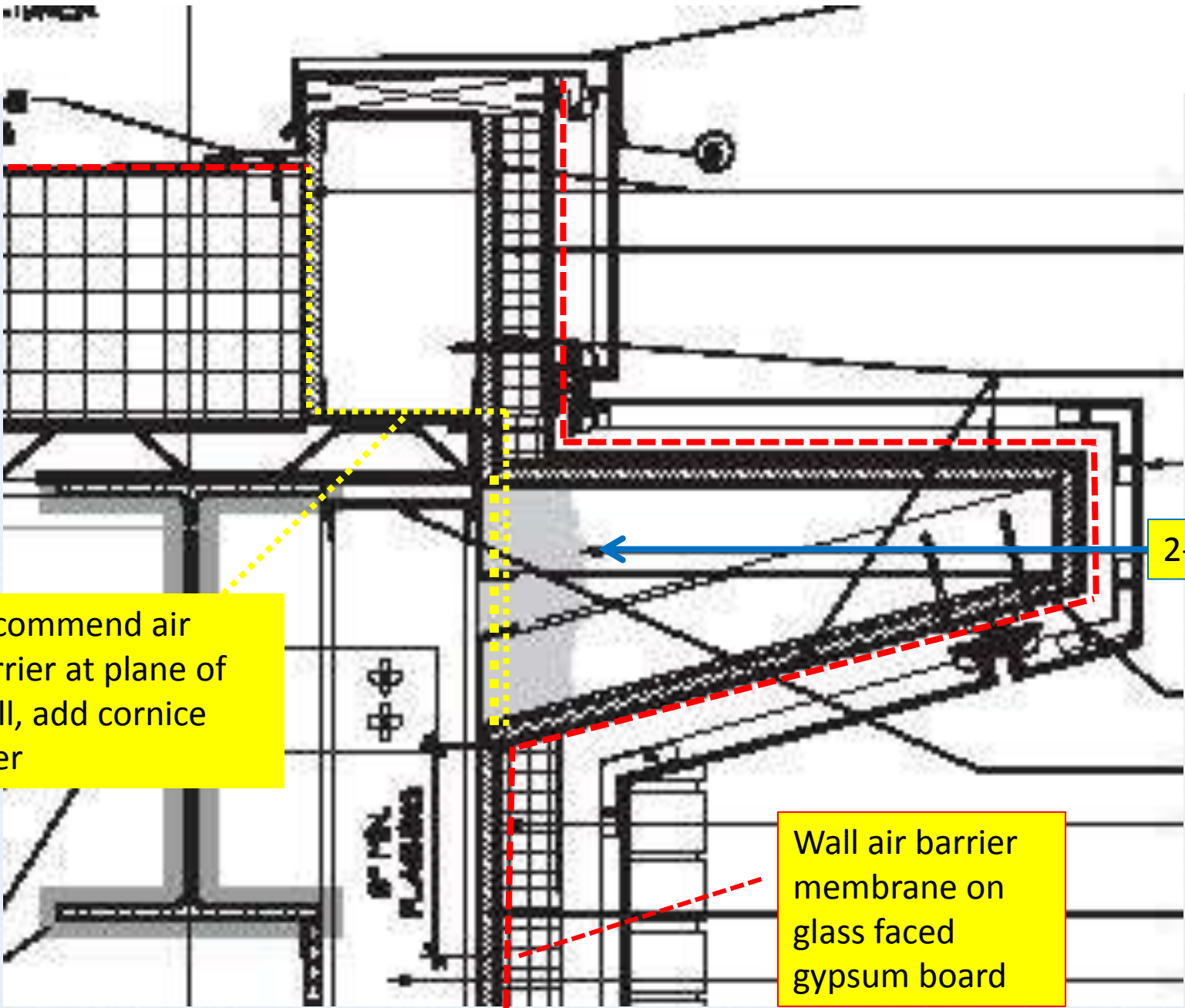
**Disclosure: a limited airflow reduction from sealing a few spots does not make a continuous air barrier system.**



## #2 don't skip the roof wall joint

- ❖ Roof wall connection found incomplete in plan review in east coast project and leaking in a field test. A third not drawn at all and open at construction.
- ❖
- ❖ Metal cornice – don't extend the air barrier and expose it to more risk when air and thermal barrier could be attached at the plane of the wall.
- ❖ Drawing review is recommended, but shop drawings, preconstruction meeting with workers to clarify details are also needed.





Recommend air barrier at plane of wall, add cornice later

2-part foam

Wall air barrier membrane on glass faced gypsum board

## ❖ Do place air barrier at plane of wall



**Don't extend air barrier out. Do include electrical and other openings in drawings**

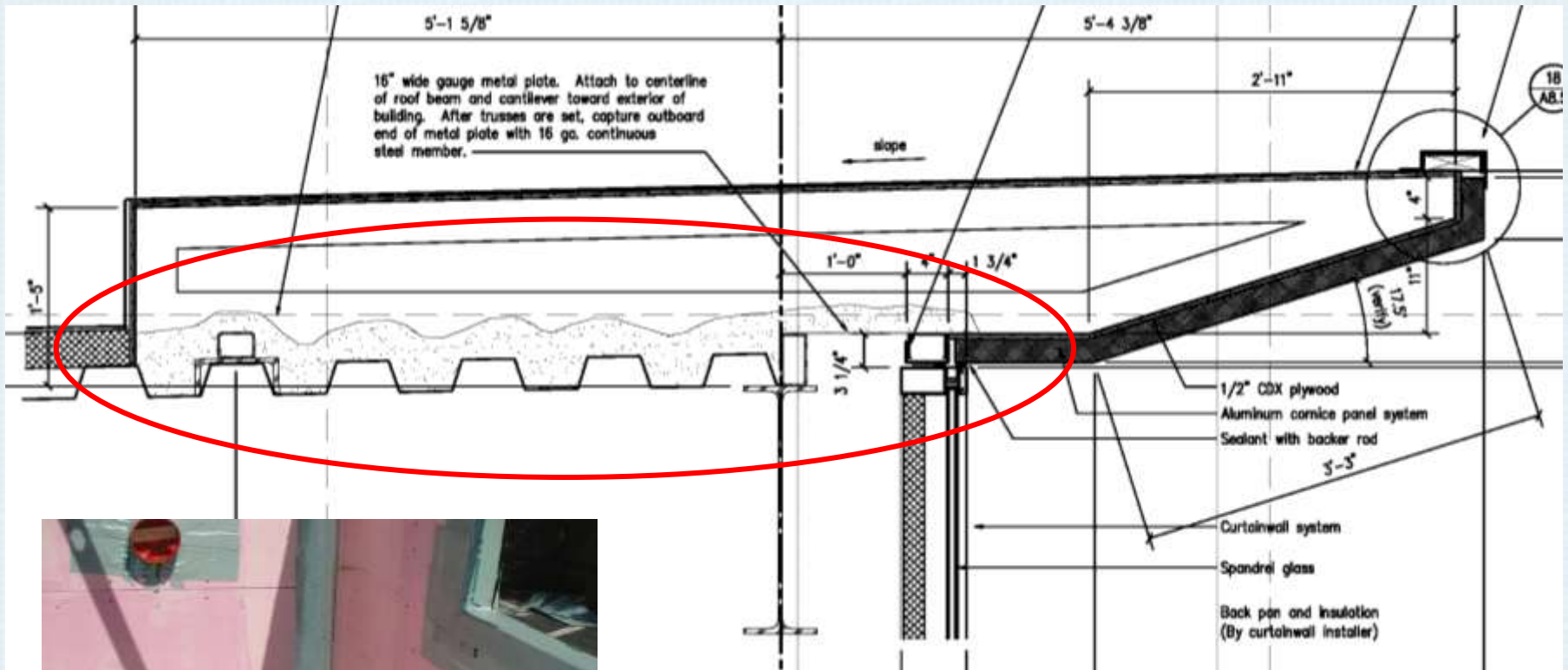


# ❖ Don't apply transition membranes without prep



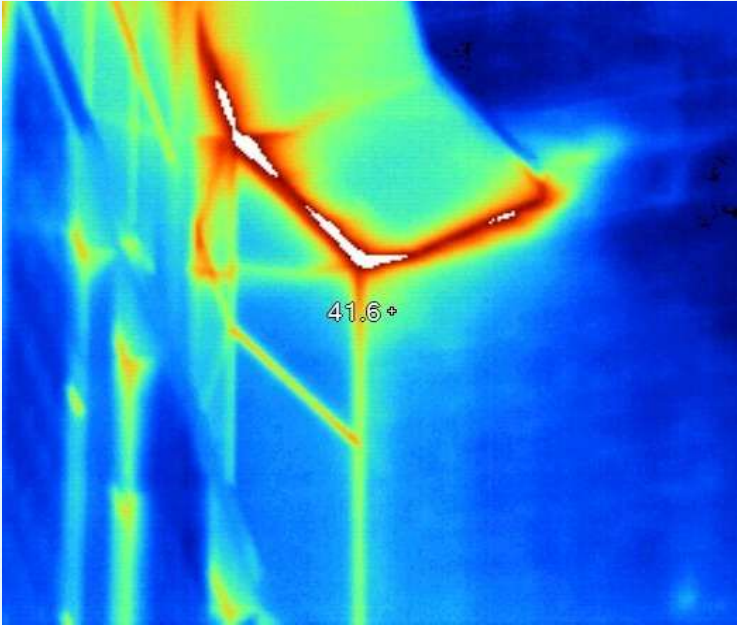
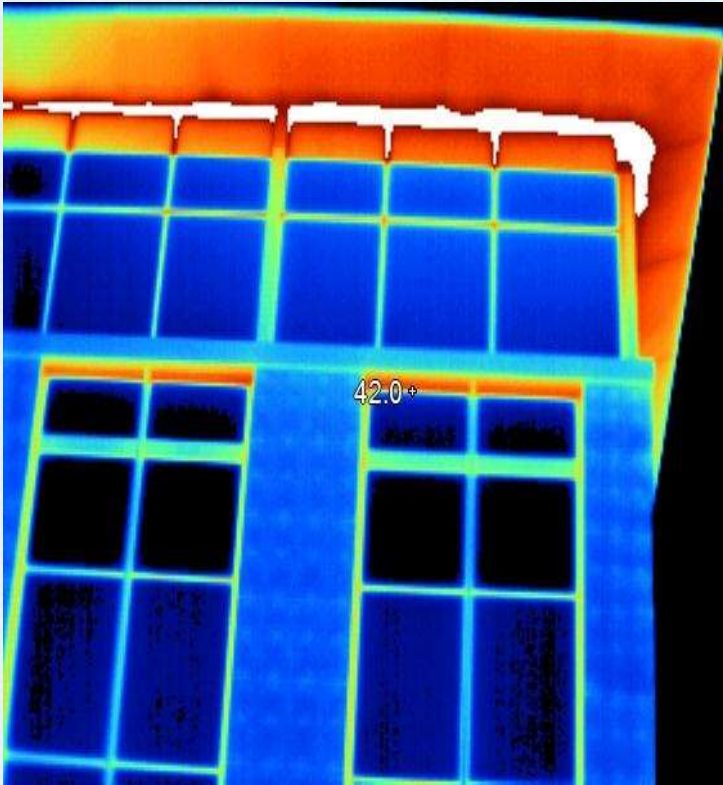


# Don't skip transition membranes for foam at roof wall, and cornice



Transition prep in  
ABAA SPF demo

# IR view of detail 12 - where to look inside

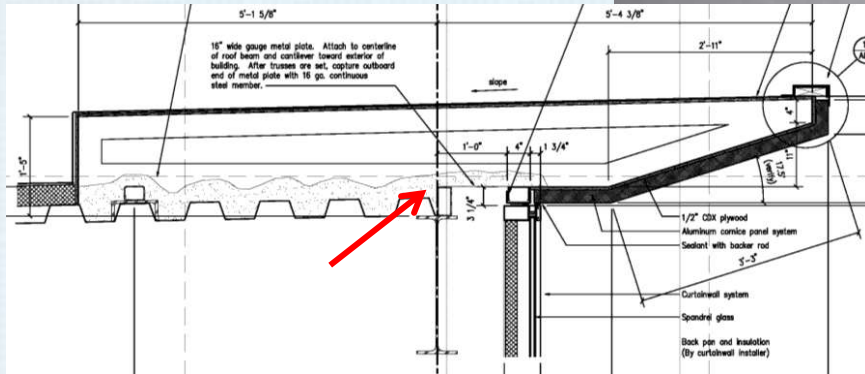


**Don't criticize this design or construction team.  
Only touchup details remain, a very tight large building**

**❖ below US ACE tightness standard**

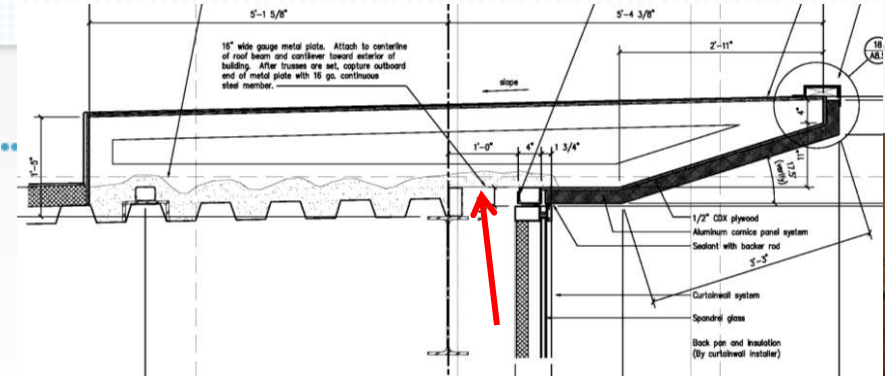
**❖ 0.11 cfm74/sq. ft. (6 sides)**

# Airflow at transitions



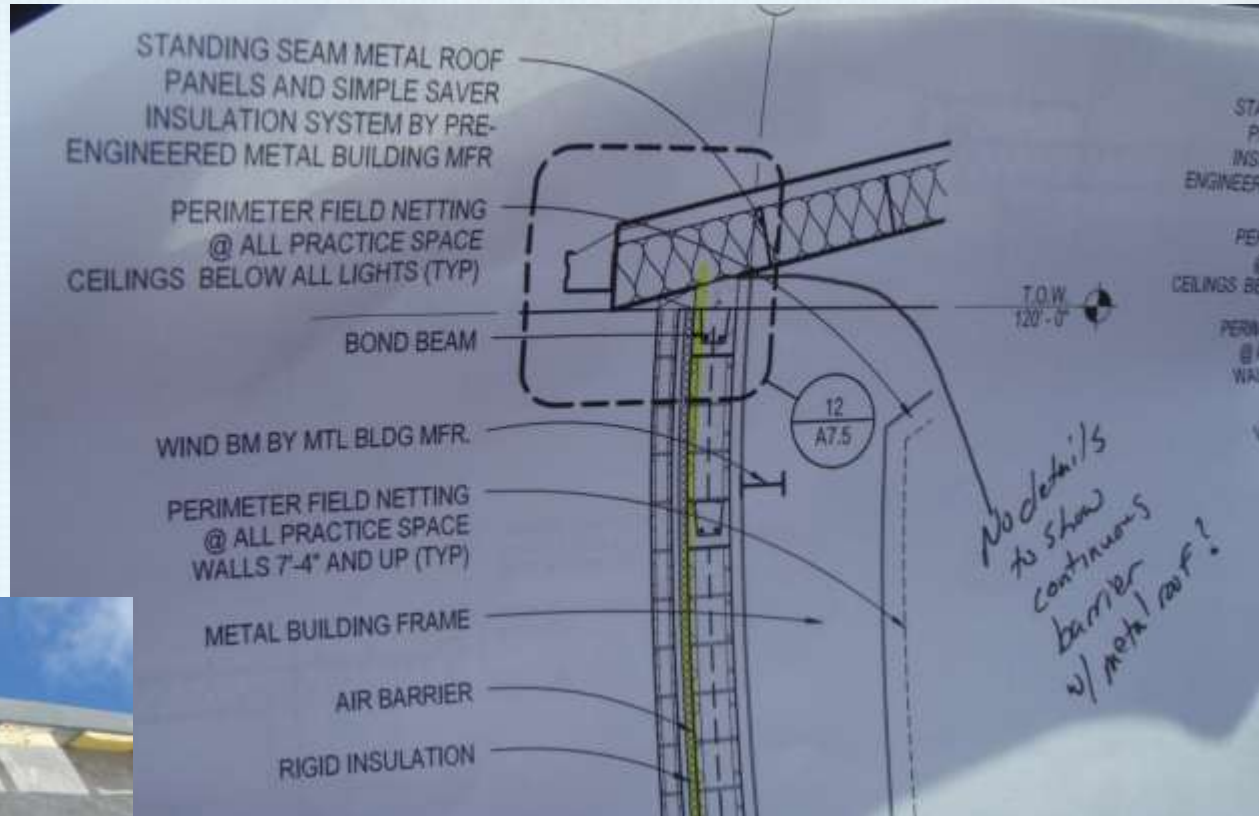


# Airflow at transitions



# Don't forget the roof /wall joint.

## Sub: Do notify general and architect



# Roof/wall joint open



View inside from exterior wall top



# Sequence: Don't skip exterior insulation at the north roof slab edge in January: ice wins





# the end

❖ Questions?