

Fax Transmittal

Tuesday, 27 September, 2005

Attention:	
From:	Norbert Senf
Regarding:	ICC chimney transition
Total Pages	7

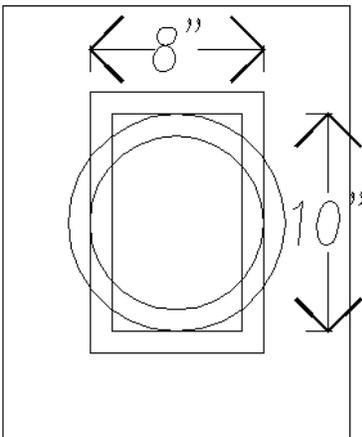
Attached please find technical documentation from ICC on the application of their anchor plate for adapting a masonry chimney to their ULC listed chimney.

For a masonry heater chimney, the installation is equivalent to the top right illustration on page 11 "Typical Masonry Chimney Extensions". In other words, there will be an existing masonry chimney, and it is getting extended with metal chimney.

On page 12, it states:

"When the original clay tile liner being extended is close to the same size and shape as the RIS chimney it is generally sufficient to construct a smooth, hand laid, refractory cement transition".

This is the situation that applies in this case. Below is a sketch that shows an 8" i.d. chimney with 1" wall thickness overlaid on an 8x12 (o.d.) clay flue liner:



The cross sectional area of an 8" round is 50.25 sq.in. , and a typical 8x12 o.d. clay liner is around 6x10 inside, or 60 sq. in.



The photo above shows a castable refractory transition parged into place, before cleanup and sponging smooth.



After sponging.

In this case, we used Excel chimney with an ICC anchor plate. Installation on a chimney would be similar, except for the brick topping cap.

The installation will be on brand new masonry. Therefore the ICC precautions for deteriorated chimneys (bond beams, etc.) are not required. I would suggest letting the brickwork cure for at least a couple of days before anchoring tapcons into it.

ICC's reference to "refractory cement" is not spelled out. Normal clay based refractory mortar or refractory cement would not be suitable, because it will shrink and crack in a thick application. "Heat Stop" may work, but we have not tried it. We have found ordinary brick mortar suitable, because portland cement has a service limit of 600F, and in a masonry heater application, this chimney will see a maximum, intermittent, flue temperature of 450 F. If required, we can supply some "Kast Set" refractory castable, which would be bullet proof in this application.

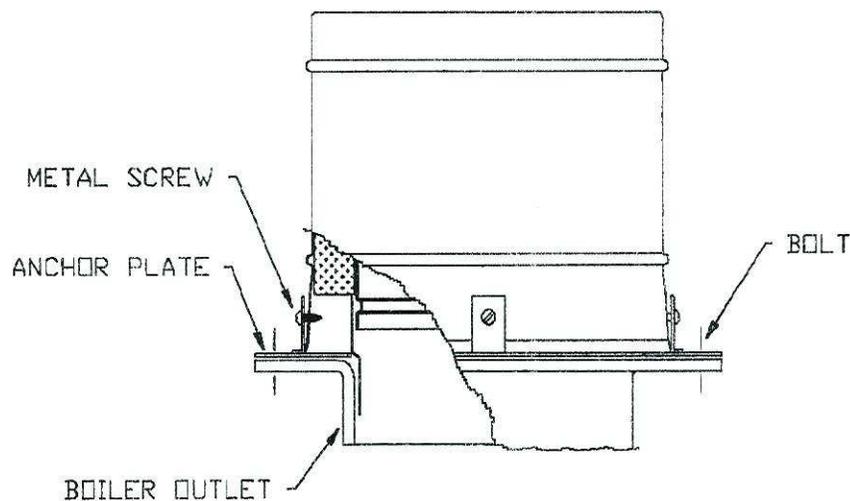
ANCHOR PLATE (AP)

Boiler Applications

The chimney may be supported directly on top of the appliance. This is achieved by attaching an Anchor Plate (AP) directly to the outlet of the appliance.

The maximum height of chimney supported will be determined by the allowable maximum load on the boiler, but should generally not exceed 25 feet.

1. The support should be bolted to the appliance using 3/8" or larger bolts.
2. Place the first chimney length in the anchor plate. Fasten it in place using one factory supplied stainless steel screw through each anchor plate bracket into the chimney casing.



Using an anchor plate to extend an existing masonry chimney.

There are two common applications for extending a masonry chimney with an RIS chimney - when the masonry chimney is too short causing draft problems and when the masonry chimney is damaged as a result of age or mechanical shock (earthquake).

1. If the RIS chimney is being used to extend an existing chimney in good condition then the anchor plate may be installed directly on to the existing chimney. It is often necessary to remove a portion of the top tile liner and some of the masonry cap in order to achieve a structurally sound clean, flat surface. Alternatively a concrete bond beam may be poured on top of the existing masonry in order to achieve a flat surface. In either case read the section on masonry transitions carefully before installing the anchor plate (see page 12).

- 1A. If the RIS chimney is being used to extend a damaged chimney read the information on page 7 regarding repairs of earthquake damaged chimneys carefully. There is no substitute for a thorough site examination of the existing chimney by a qualified contractor. The pamphlet "Repair Of Earthquake Damaged Masonry Chimneys Using New Metal Chimneys" by the City of Los Angeles Department of Building and Safety provides specific instructions on how to determine a suitable location to adapt from masonry to metal, This pamphlet also recommends specific steel bracing which must be fastened to the roof to provide lateral support for the existing masonry. See drawings of typical installations on page 11.

2. Pour a concrete bond beam to provide a suitable surface to fasten the anchor plate and seal the top of the existing masonry. Read the section on masonry transitions carefully before installing the a bond beam or anchor plate (see page 12).

- 3, Apply silicone to the top surface of the masonry prior to bolting the anchor plate down.

4. Bolt the anchor plate to the top of the existing masonry using 3/8" or larger metal anchors solidly fastened into the existing masonry.

- 5, Screw the first section of chimney to the anchor plate using one factory supplied stainless steel screw through each pre-punched hole,

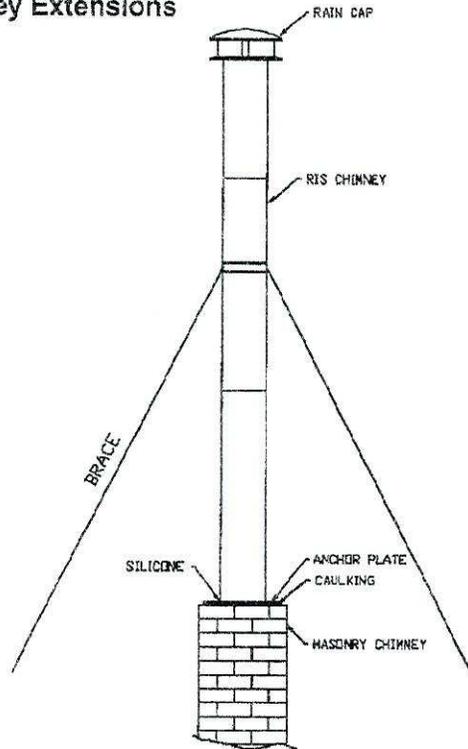
6. Carefully caulk the bottom of the chimney section with silicone where it contacts the anchor plate to prevent water from entering between the anchor plate and the chimney, At the same time insure that the perimeter of the anchor plate is thoroughly caulked where it contacts the masonry.

7. Install additional components as required, Be sure to maintain the required clearance to combustible materials.

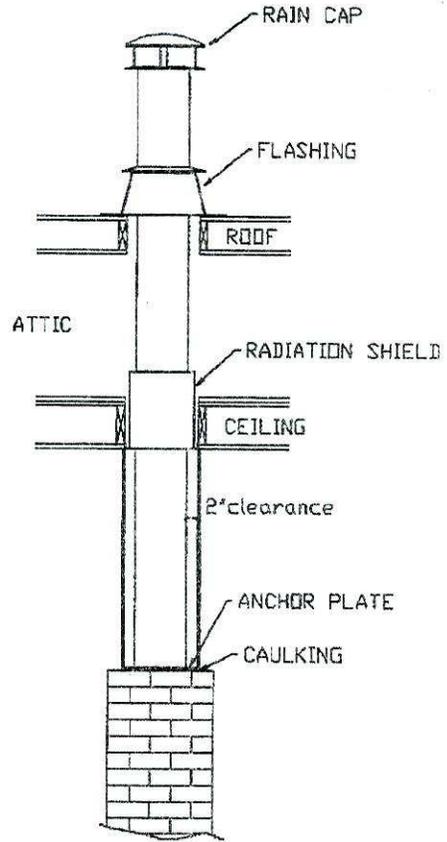
8. The maximum height of un-braced or un-guyed chimney above a roof is 5 ft.

9. The maximum height above an anchor plate without a lateral support is 5'.

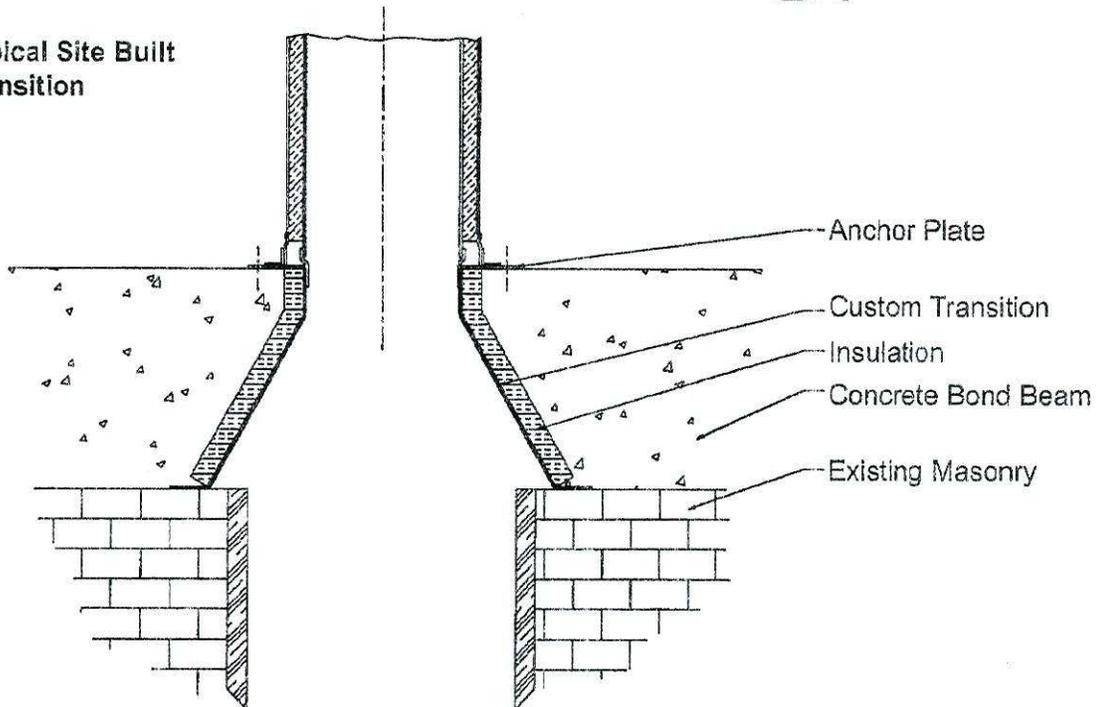
Typical Masonry Chimney Extensions



- .. SEAL WITH CAULKING BETWEEN THE MASONRY CHIMNEY TOP AND THE ANCHOR PLATE
- .. SEAL WITH SILICONE BETWEEN THE RIS CHIMNEY AND THE ANCHOR PLATE



Typical Site Built Transition



Extending a masonry chimney lined with a metal chimney liner

RIS may be used to extend a masonry chimney which has been lined with an approved chimney liner. This type of repair is generally found where the original flue tile has been damaged by chimney fire or moisture and in cases where the flue has been relined to reduce its cross section. The RIS anchor plate has a single wall connector section designed to allow a metal chimney liner to be screwed directly to it.

Masonry Transitions

Masonry flue liners are typically rectangular, oval, or square, and they are rarely consistent in size. When installing an RIS chimney to extend a day tile liner the new round chimney must have a cross sectional area equivalent to the original masonry flue. In some cases this requires a dramatic change in the shape of the flue (e.g: a 6 X 12 flue adapted to 10" round).

When the original clay tile liner being extended is close to the same size and shape as the RIS chimney it is generally sufficient to construct a smooth, hand laid, refractory cement transition

When the original clay tile liner is substantially different in size or shape from the RIS chimney it is recommended to install a locally fabricated stainless steel transition section between the two systems in order to insure smooth gas flow. It is not possible for ICC to offer transition sections as a stock item because of the variations in flue tile size - even a "standard size" flue tile varies quite a bit from piece to piece. We recommend that this transition be locally constructed using the following procedure (see **the drawing on page 11**)

- Make a paper template of the existing tile liner
- Have a local sheet metal fabricator make a rectangular to round tapered transition having the following properties:
- Constructed of .025 (22 gauge) or heavier type 304 or 316 stainless steel
- The rectangular section should correspond as closely as possible to the shape of the
- template and should have a 1" flare at the end to allow it to seat squarely on top of the
- existing chimney - **see drawing**.
- The single wall connector on the RIS anchor plate should fit snugly inside the round section of the transition.
- For radical shape changes the tapered section should be 6-8 inches long - this will require a thicker bond beam.

The transition section should be wrapped with 1" of mineral fibre insulation prior to pouring the bond beam. This allows for expansion and contraction and creates a thermal break between the metal and masonry.