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### 3. + 2 : to Prevent Air Loss

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Keep concrete from sliding down the line under its own weight. Where possible, avoid vertical or steep downward boom sections. Be cautious with high slumps, particularly with high cement content mixes and mixes containing silica fume. Steady pumping may help somewhat to minimize air loss, but will not solve most problems.

- a. Try inserting four 90 degree elbows just before the rubber hose. (Do not do this unless pipe clamps are designed to comply with all safety requirements). This helps but won't be a perfect solution.
- b. Use a slide gate at the end of the rubber hose to restrict discharge and provide resistance.
- c. Use of a 1.8 m diameter loop in the rubber hose with an extra section of rubber hose is reported to be a better solution than (a) or (b).
- d. Lay 3.5 - 6.0 m of hose horizontally on deck pours. This doesn't work in columns or walls and requires labor to handle the extra hose.
- e. Reduce the rubber hose size from 125mm to 100mm. A transition pipe may be needed to avoid blockages.

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- a. Before the pour, plan alternative pump locations and decide what will be done if air loss occurs. Be prepared to test for air content frequently.

- b. Sampling from the end of a pump line can be very difficult. Wear proper personal protective equipment. Never sample the initial concrete through the pump line.
- c. Sample the first load on the job after pumping 4 or 5 m<sup>3</sup>. Temper it to the maximum permissible slump. Swing the boom over near the pump to get the maximum length of vertical downward pipe and drop the sample into a wheel barrow. If air is lost, take precautions and sample at the point of placement.
- d. If air loss occurs, do not try to solve the problem by increasing the air content delivered to the pump beyond the upper specification limit.

High air content concrete with low strength could, or almost surely will be placed in the structure if boom angles are reduced or somewhat lower slump concrete is pumped.



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