Polychlorinated Biphenyls (PCBs) are hazardous organic compounds best known for their use in transformers and electrical capacitors because of their non-combustibility and flexibility. Lesser known, but widespread, use in caulking, finishes, and paint is now coming to light because of health risks, particularly associated with their prevalence in schools. Humans can be exposed to PCBs in a number of ways: through deteriorating caulk that makes its way to the soil by rain run-off, by breathing contaminated air, or by dermal contact with the material. Abating materials with high concentrations of PCBs is required by law. This thesis will give a brief introduction of the history of PCBs in building construction from about 1950 to 1980 before production, sale, and disposal was regulated through the Toxic Substance Control Act (TSCA). The TSCA was one of a group of acts passed in the 1970’s to improve the quality of the environment including the Clean Air Act, Federal Water Pollution Control Act, and Safe Drinking Water Act. Although proper removal of PCBs from building materials will decrease the amount in the environment, this may have implications for historic buildings. Because PCBs often migrate into porous adjacent substrate, original materials may have to be abated as well.

I was introduced to the topic of polychlorinated biphenyls during a summer internship when a client did not want to re-point within six inches of the windows on their historic building for fear of PCBs in the sealant. Re-pointing would have a detrimental effect on the appearance of the façade. The presentation will be illustrated with case studies of buildings containing PCBs and how they were managed. PCB abatement will continue to be a concern, especially in urban areas, because they are most commonly found in apartment buildings, schools, and larger office buildings. New York in particular has been examining PCB contamination in public schools. P.S. 199 in Manhattan, a 1963 building by noteworthy architect Edward Durell Stone is a prime example of New York City’s push to remove PCBs from public schools. The building was part of an initial PCB study and is well documented. A second case study is Westgate Dormitory at MIT where significant areas of brick were removed in order to get rid of the residual PCBs. Case study three will focus on PCB migration in a concrete building on UMass Amherst’s campus. I will compare the techniques for abatement from the case studies to determine what parallels can be drawn. This thesis will give preservation instructions for buildings containing PCBs by providing a step by step checklist of how PCB abatement should be addressed in historic structures.