Hungary-Croatia
IPA Cross-border Co-operation Programme

Where rivers connect

Air Change Rate field test results in the Croatian – Hungarian border region

Dr. László Fülöp, György Polics
Faculty of Engineering and Information Technology,
University of Pécs, Hungary

The project is co-financed by the European Union through the Hungary-Croatia IPA Cross-border Co-operation Programme

Hungary-Croatia
IPA Cross-border Co-operation Programme

Where rivers connect

Air tightness and natural air change rate field test project

- **A joint project of University of Pécs, Hungary and University of Osijek, Croatia is aimed to gather information on the air tightness and air change rate as well as related comfort aspects of dwellings in the border region of Hungary and Croatia**
- **The project was supported by the EU Hungary-Croatia IPA** (Instrument for Pre-Accession Assistance) **Cross-border Co-operation Programme**

The project is co-financed by the European Union through the Hungary-Croatia IPA Cross-border Co-operation Programme

AIVC Workshop, Brussels, 18-19 March 2014

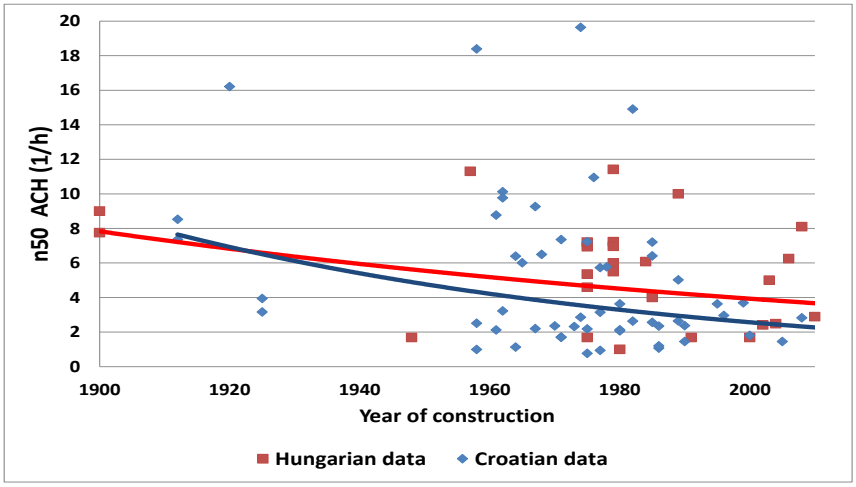
The types of tests performed

- Blower Door A type tests at 50 Pa pressure difference for ACH values without any intervention in the dwellings
- and a series of data points at various pressure differences and projection the ACH trend line to 4 Pa
- Natural air change rate by SF_6 tracer gas test
- Blower Door B type air tightness tests at 50 Pa pressure difference. Vents, chimneys are sealed.
- Simultaneously with Blower Door B type air tightness tests smoke, air velocity measurement and thermography is used to find the leakages

The project is co-financed by the European Union through the Hungary-Croatia IPA Cross-border Co-operation Programme

Where rivers connect

Summary of n_{50} ACH test results



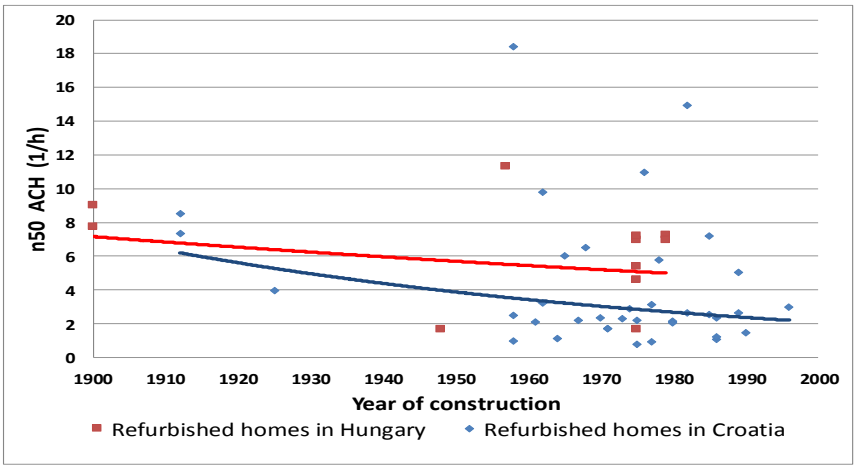
The project is co-financed by the European Union through the Hungary-Croatia IPA Cross-border Co-operation Programme

AIVC Workshop, Brussels, 18-19 March 2014

Hungary-Croatia
IPA Cross-border Co-operation Programme

Where rivers connect

n_{50} ACH test results of refurbished dwellings

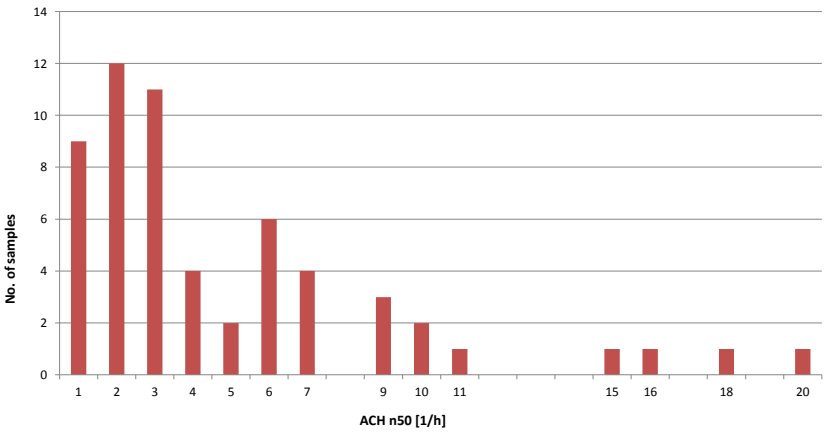


The project is co-financed by the European Union through the Hungary-Croatia IPA Cross-border Co-operation Programme

Hungary-Croatia
IPA Cross-border Co-operation Programme

Where rivers connect

Distribution of n_{50} ACH values in Croatia



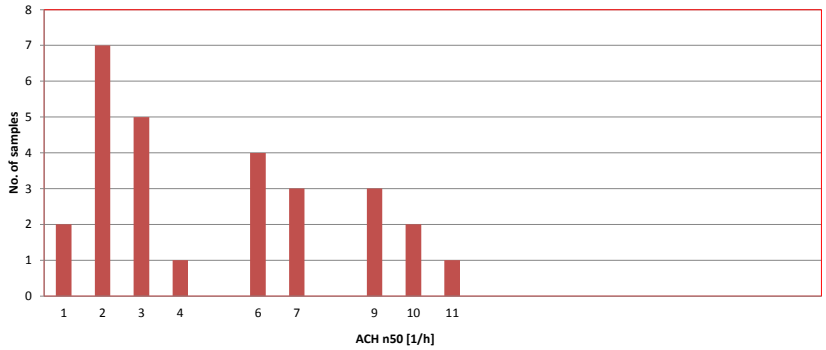
The project is co-financed by the European Union through the Hungary-Croatia IPA Cross-border Co-operation Programme

AIVC Workshop, Brussels, 18-19 March 2014

Hungary-Croatia
IPA Cross-border Co-operation Programme

Where rivers connect

Distribution of n_{50} ACH values in Hungary

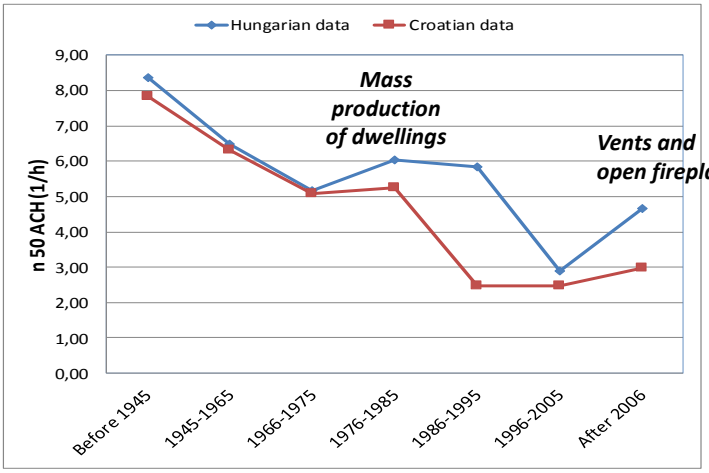


The project is co-financed by the European Union through the Hungary-Croatia IPA Cross-border Co-operation Programme

Hungary-Croatia
IPA Cross-border Co-operation Programme

Where rivers connect

Average n_{50} ACH values for typical periods



The project is co-financed by the European Union through the Hungary-Croatia IPA Cross-border Co-operation Programme

AIVC Workshop, Brussels, 18-19 March 2014

Conclusion

- **The spread of the data points is very high ranging from very low values to very high ones**
- **The spread of the ACH rate values of refurbished dwellings is very high too**
- **The correlation between construction period and ACH is not strong**
- **There are very low values meaning that deliberate ventilation is vital in those dwellings**
- **In general the ACH values in the Croatian dwellings are lower than that of in the Hungarian ones**

The project is co-financed by the European Union through the Hungary-Croatia IPA Cross-border Co-operation Programme

Hungary-Croatia
IPA Cross-border Co-operation Programme

Where rivers connect

Air Change Rate field test results in the Croatian – Hungarian border region

Thank you for your kind attention

Dr. László Fülöp
Department of HVAC
Faculty of Engineering and Information Technology
University of Pécs, Hungary

The project is co-financed by the European Union through the Hungary-Croatia IPA Cross-border Co-operation Programme

AIVC Workshop, Brussels, 18-19 March 2014