Significant intrinsic and extrinsic noises in EDA collected by a wearable biosensor in the field hinder the application of EDA- based stress measurement for understanding the interaction be- tween humans and the built environment. Also, the validity and reliability of the stress metrics (i.e., BCC and ICC) calculated from EDA denoised by the pro- posed method were statistically higher than those from EDA denoised by advanced benchmark methods. The proposed denoising method contributes to monitoring and improving the quality of the human-built envi- ronment interaction by enabling wearable EDA sensors to collect high-quality signals and accurately measure stress from people's daily outings. Consequently, classi- fication models based on stress metrics showed statistically higher accuracy with EDA denoised by the proposed method than by the benchmark methods. This finding demonstrates that intrinsic noise with signal characteristics similar to those of desired signals can be alleviated by referencing other signals readily acquired using multimodal wearable biosensors. Then intrinsic respiration noises are detected and attenuated using a subject- independent machine learning model that detects noise-inducing irregular respiration from PPG collected at the same time as EDA. The proposed method first attenuates extrinsic noises by applying sev- eral filters (e.g., high-pass filter and wavelet filter). These results indicate that the proposed denoising method can improve stress measurement using EDA by attenuating both intrinsic respiration noise and extrinsic noise in EDA. The subject-independent irregular respiration classifier trained by applying a MDAN showed 0.849 accuracy in LOSOCV.