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Experiments Constraining Indirect Drive Hohlraum Performance on the National Ignition Facility STEPHAN MACLAREN, J.H. HAMMER, M.L. KERVIN, J.D. MOODY, M.B. SCHNEIDER, R.P.J. TOWN, K. WIDMANN, B.E. YOXALL, LLNL — "Viewfactor" experiments on the National Ignition Facility are used to characterize the x-ray drive seen by an indirect drive ICF capsule. The experiments employ a truncated hohlraum affording views of the soft x-ray emission striking the capsule as well as the emission exiting the laser entrance holes. The experiments show that the drive measured from the capsule view is 15 to 20% lower than that inferred from calculations. Additionally, they show the entrance hole does not close as much as the simulation would predict by the end of the pulse. The results are consistent with simulations of capsule implosion experiments that require multipliers less than unity on the backscatter-corrected laser power into the hohlraum. The results also explain the discrepancy between the observed entrance hole flux and that extracted from the reduced-drive simulations. Finally, both time-integrated and time-resolved x-ray images from the experiments demonstrate the motion of the wall plasma directly heated by the outer-cone beams is more extensive than predicted. These results provide much greater constraints on a predictive model of indirect drive ICF hohlraum performance. This work was performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under contract DE-AC52-07NA27344.

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