ABSTRACT_:_Physical_model_simulations_have_been_performed_to_determine_the_effects_of_depth,_joint_spacing_and_orientation_on_the_maximum_unsupported_span_of_shallow_underground_openings_under_static_and_dynamic_loads.__Cubical_and_rectangular_blocks_of_Phu_Phan_sandstone_are_arranged_in_a_vertical_test_frame_to_simulate_a_two-dimensional_representation_of_single_rectangular_openings_in_rock_mass_with_two_mutually_perpendicular_joint_sets.__Results_indicate_that_the_normalized_maximum_span_(W/SV)_rapidly_increases_with_the_normalized_depth_(D/SH),_and_tends_to_approach_a_certain_limit_for_each_joint_spacing_ratio,_SV:SH.__The_maximum_span_increases_with_decreasing_SV:SH_ratio.__Under_SV=SH_condition,_increasing_the_joint_angles_from_0°_to_45°_reduces_the_maximum_span_by_about_20%.__At_shallow_depths_the_acceleration_of_0.225_g_can_reduce_the_maximum_span_by_up_to_50%.__The_impact_of_the_dynamic_loads_however_reduces_as_the_depth_increases.__The_test_results_under_both_static_and_dynamic_loading_compare_reasonably_well_with_those_calculated_from_discrete_element_analyses_using_the_UDEC_code.fi